Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
Notice of Proposed Rule Making	)	ET Docket No. 00-221
Reallocation of the 216-220 MHz,	)	RM-9267
1390-1395 MHz, 1427-1429 MHz,	)	RM-9692
1429-1432 MHz, 1432-1435 MHz,	)	RM-9797
1670-1675 MHz, and 2385-2390 MHz	)	RM-9854
Government Transfer Bands	)	

To: Chief, Wireless Telecommunications Bureau

Reply Comments
of LMS Wireless and Warren C. Havens

Warren C. Havens ("Havens") and Telesaurus Holdings GB LLC ("Telesaurus"), together doing business as LMS Wireless ("LMSW") (herein, "LMSW-Havens") hereby submit Reply Comments in this proceeding regarding the above-captioned Notice of Proposed Rule Making (the "Notice") and Comments submitted in response thereto, including Comments of Mobex.[1] Telesaurus's and Havens's background as FCC licensees in four radio services is described in Section 2 of the Attachment hereto, and in the Comments and Reply Comments of Havens submitted in this docket in the year 2001.

Attachment I hereto are Reply Comments of LMSW-Havens dated 3-18-02 in FCC DA 02-361 (In the Matter of Request for Comments on NTIA Special Publication 01-49: Current and Future Spectrum Use By The Energy, Water, and Railroad Industries). These attached Reply Comments outline a proposal for a nationwide critical infrastructure ("CI") Advanced-

[1] It is not clear whether these were filed as required.

Technology Land Infrastructure Service ("ATLIS") using available 30+ MHz of lightly used spectrum in 200 and 900 MHz and the New 5.9 and 4.9 GHz CI-oriented allocations. *This spectrum includes the 216-222 MHz subject of this reallocation proceeding*.

The attached Reply Comments present further the proposals for use of 216-222 MHz Havens submitted in the above-captioned docket in year 2001. What Havens described as a "Advanced Technology 220 MHz" ("AT 220"), "National Environmental Wireless Service" ("NEWS"), "Transportation Infrastructure Radio Services" and related matters in his year-2001 Comments and Reply Comments in this docket are much further described in the Attachment I hereto and therein called "Advanced Technology Land Infrastructure Service" ("ATLIS"). *This attached ATLIS proposal represents the highest and best use of 216-222 MHz as well as the other spectrum described therein.*.

The Wireless Bureau commented in the Notice at paragraph 49 that Havens' proposed AT 220 and NEWS do not seem feasible due to "heavy incumbent use of the 217-220 MHz band." In its Comments, Mobex suggested the same.[2] However, as Havens mentioned in his year 2001 Comments and Reply Comments, this is simply not correct if the Commission applies reasonable diligence and appropriate application of its rules: (i) Only a minor part of the nation's land mass is subject to issued licenses in that band. (ii) The licenses issued are not heavily "used," rather, all evidence in FCC files and the public domain (trade press articles, press releases by licensees, equipment vendor information on products and sales, and filings before the Bureau and Commission by Havens contesting with clear evidence various AMTS

[2] It should be noted that Havens, in his Comments and Reply Comments submitted in this proceeding in year 2001, specifically pointed to various defects in licenses in 217-222 MHz, including Mobex's AMTS licenses. To date, Mobex has offered no response. Nor has it refuted the specific showings of such defects Havens has submitted to the Bureau in various petitions to deny.

licensing matters and responses thereto by Mobex and Regionet) reveal very little "use" indeed. (iii) Per clear evidence presented to the Wireless Bureau in formal petitions filed by Havens, a large portion of the licenses issued in this range were issued clearly without compliance by the applicant or the Bureau licensing division with fundamental rule requirements, and were thereafter sustained, after years of construction deadline extensions (without use of waiver process and fees), via "station construction notices" that on their face failed to claim that the stations were constructed under the rules, per the construction deadline, or per the license parameters (coordinates, maximum antenna height, etc.) but instead plainly reported otherwise. These licenses are clearly defective and subject to revocation.

The Commission should postpone any planned auction of spectrum in the 216-222 MHz range and instead (at least prior to any auction) (i) conduct a thorough review to determine which licenses in this band should be revoked and then act on such determination, and (ii). consider the attached ATLIS proposal with respect to the three proposed ATLIS bands (216-222 MHz, 902-928 MHz, and the 75-MHz-wide 5.9 GHz ITS band). LMSW-Havens plan to propose rulemaking in regard to ATLIS soon, including with respect to 216-222 (or 216-225) MHz.

Regarding Comments by Mobex filed in the above-captioned matter dated March 1, 2002, Mobex (a party to numerous pending restricted proceedings involving Havens) and Dennis Brown deliberately introduced false, misleading, and inflammatory allegations concerning Havens which constitute libel and are irrelevant to this proceeding. A rule making proceeding is no place for such mud slinging. It subverts the purpose of Commission rule making and circumvents the required Commission procedures for raising such allegations. For this gross abuse, Mobex and Dennis Brown should be sanctioned. To not do so invites

perpetuation or escalation of such abuse. In Attachment II, a declaration at the end of this filing, I respond further to this matter.[3]

Regarding Mobex's comment with respect to Securicor Wireless Holding's 5 kHz proposal (i) this Securicor company is at this time out of business including making and marketing 5 kHz equipment (e.g., see Commission records regarding transfer of its 220 MHz licenses, and various trade press articles), and its proposal should thus be considered moot, and (ii) Mobex is wrong that AMTS has 25 kHz channelization: see §80.481 (any channelization permitted). §80.481 should remain as it is.

Regarding comments on rule changes concerning secondary data communications in 216-222 MHz, and any other rule changes in this band, I oppose such changes at this time per my comment above: Rather than any such changes, the Commission should perform the above-described review of licensing and licensees and consideration of the ATLIS proposal, and then determine the best course.

Respectfully submitted,

WarrenHavens

Warren C. Havens
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March 20, 2002

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[3] Including manifest falsity of and defects in the allegations.

Attachment I (of II)

In the below, there are slight changes in formatting, including pagination and footnote numbering, from the original.

Before the
Federal Communications Commission
Washington, DC 20554

In the Matter of	)	
	)	
Request for Comments on	)	
NTIA Special Publication 01-49:	)	
Current and Future Spectrum Use By The	)	DA 02-361
Energy, Water, and Railroad Industries	)	

To the Wireless Telecommunications Bureau

Reply Comments
of LMS Wireless and Warren C. Havens

Proposal for a Nationwide CI
Advanced-Technology Land Infrastructure Service ("ATLIS")
Using Available 30+ MHz of Lightly Used Spectrum in 200 and 900 MHz
and the New 5.9 and 4.9 GHz CI-Oriented Allocations

1. Summary

The captioned NTIA Study presents an overview of spectrum uses and needs of certain critical infrastructure industries. In this regard, below we outline a practical long-term solution for these and other critical infrastructure industries and applications.

Presenters and Spectrum Base: LMS Wireless ("LMSW") and Warren Havens ("Havens") (together, "LMSW-Havens") hold 6 MHz or more of spectrum from VHF to 900 MHz in over 80% of the nation, and with several other licensees in the same bands, over 15 MHz nearly nationwide. LMSW-Havens and this spectrum are described in Section 2 and

Exhibit 1 below. This provides an ample spectrum base for the success of the Advanced-Technology Land Infrastructure Service ("ATLIS") proposed herein, and this spectrum base would be increased several fold via proposed FCC rule changes noted below.

ATLIS Spectrum: In these Reply Comments, LMSW-Havens outlines a proposal regarding *permanent dedication, for primary exclusive use*, to the nation's critical infrastructure ("CI") industries, including roadway,[4] rail, utilities, pipelines, airports, etc. of (i) all of the 26 MHz in the 902-928 MHz Location and Monitoring Service ("LMS") band, (ii) most of 6 MHz in the 216-222 MHz band, and (iii) all of the 75 MHz in the 5.9 GHz ITS band, along with some of the 4.9 GHz federal transfer band, for nationwide multi-band "Advanced-Technology Land Infrastructure Service" or "ATLIS" (the "ATLIS Proposal").

The spectrum proposed is largely available at this time, including the vast majority of the 902-928 MHz band which would provide for the majority of the wide-area mobile services. LMSW-Havens has 6 MHz in this band almost nationwide: geographic licenses issued by auction. LMS spectrum was allocated by the FCC to serve the nation's roadway infrastructure (generally, wireless for "Intelligent Transportation Systems" ["ITS"]), and may also be used for other CI. With reasonable changes in FCC rules for these bands (well within precedent) this ATLIS proposal is entirely feasible and would provide most if not all of the needed spectrum subject of this NTIA Spectrum study and the Comments submitted in this docket by CI entities.

FCC Rule Changes for ATLIS: To commence ATLIS with the noted 200 and 900 MHz spectrum, rule changes will be proposed to the FCC by LMSW-Havens within the next two

[4] Primarily for Intelligent Transportation System ("ITS") applications, both public, private, and shared. The US roadway system is one of the most extensive and important infrastructure networks. All of the nation's critical infrastructure components are interrelated. The 902-928

months, based on several years research into the relevant market, regulatory, and technical issues. LMSW-Havens' consultants for this purpose include Ralph Haller of Fox Ridge Communications, Gettysburg, PA and Michele Farquhar of Hogan & Hartson, DC.

ATLIS and CI Entities. LMSW-Havens has previously discussed (commencing with a presentation to the UTC Technical Committee in Phoenix in year 2000, and presentations to ITS America in year 2000) and will continue to discuss the concepts in this ATLIS proposal with ITS America, UTC, and various CI companies, and commencing with these Reply Comments, will include additional CI industry companies and representative organizations, and parties involved in Homeland Security. With sufficient interest from the CI community, the noted FCC initiative is likely to succeed since the targeted spectrum is already largely committed to CI, and the ATLIS proposal would fulfill a major public interest.

ATLIS Technology, Capacity Growth, Interoperability. Commencing with current digital technology, such as Project 25 or Tetrapol for mobile, and various technologies for Telemetry and other fixed services ("ATLIS Phase 1"), and migrating to "4th Generation" ("4G") technologies (e.g., using SDR [software defined radio], SDMA [spatial division multiple access], OFMA, ODMA, etc.), whereby capacity per MHz would increase by an order of magnitude or more (such as per the DARPA "XG" 4G project) ("ATLIS Phase 2"), this spectrum would provide for the rapidly growing wireless service needs of the nation's CI, both mobile and fixed, from conversational class such as conventional voice to "broadband" for real-time video, two-way biometric identification and authorization, and other high-speed applications. Both initial and subsequent ATLIS technologies and networks would be interoperable with Public Safety systems to large extents.

MHz band is licensed for use in wide-area and localized systems for various ITS purposes. Per

ATLIS Integration with Current CI Wireless. The current CI wireless systems would be reasonably integrated into ATLIS in its initial stage and would provide most of the network facilities needed (including properly spaced base station sites for the ATLIS 200 and 900 MHz spectrum employed in the FDMA-based Project 25 or Tetrapol), and the current CI spectrum could be fully integrated into ATLIS in its "4G" stage (including via SDR [software defined radio] base and terminal equipment that would handle from VHF to 900 MHz and higher).

ATLIS Cost and Quality Advantages: Per this ATLIS proposal, the cost to CI entities of the wireless services (combined cost of spectrum and network capacity and end-user devices) should be considerably less, and the reliability, scope, and quality, of the wireless services considerably higher, than if they obtained at no cost spectrum for their exclusive use and operated exclusive networks.

These ATLIS cost and quality advantages would be due to (i) the relatively low cost of this CTIS spectrum at FCC auctions, (ii) building and operating the ATIS networks largely on CI infrastructure (antenna sites, rights of way, switch and node shelters, backhaul link facilities, installation and maintenance capabilities, etc.), which use would be credited toward network use rights, or ownership, as cash-equivalent in-kind payments, (iii) the vast economies of scale achieved via very-wide-area high-capacity ATIS networks shared by many CI entities in each region providing secure virtual private networks, but interoperable as desired, (iv) the multiple bands employed yielding far more cost-effective coverage than any single-band network, and allowing more cost-effective provision of the multiple QoS classes needed (a full range of "Conversational," "Streaming," "Interactive", and "Background" Quality of Service classes), and (v) the large spectrum base and broad CI-wide plan would provide an unprecedented

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this ATLIS Proposal,

market opportunity for equipment vendors and technology and network development and integration entities,[5] justifying greater and more rapid development of technology and products needed for advanced wireless for CI than if there was lesser and more fragmented spectrum and a less coordinated approach to future CI wireless.

ATLIS Schedule: If the FCC grants preliminary relief (waivers and STA) related to the above-noted proposed ATLIS rule changes in a reasonable period of time, then within the first half of 2003 ATLIS Phase 1 (see above) can commence with re-banded current digital technologies, with Phase 2 following several years thereafter.

[5] Among others, LMSW -Havens has thus far discussed this ATIS plan with SAIC, Motorola, Microwave Data Systems, Nortel, EADS, and Siemens.

2. LMS Wireless and Warren C. Havens

Warren C. Havens ("Havens") and Telesaurus Holdings GB LLC, together doing business as LMS Wireless ("LMSW") (herein, "LMSW-Havens"), hold FCC licenses in (i) the Location and Monitoring Service ("LMS") in 902-928 MHz (LMSW-Havens hold 6 MHz covering 80% of the nation population, and 90% of the land), (ii) the AMTS Service in 217-220 MHz (LMSW-Havens holds 1 MHz in some regions), (iii) the VHF Public Coast ("VPC") Service at ~160 MHz (LMSW-Havens hold .35 MHz in most of the Rocky Mountain states), and (iv) the 220-222 MHz Service (Havens holds direct and indirect interest in ~.25 to 1 MHz in the Western half of the nation). See Exhibit 1 for details. These license holdings represent approximately 1.3 billion MHz Pops (6 MHz or more in most all of the nation), one of the largest holdings of spectrum in the nation for wide area systems, especially new systems. (See Exhibit 1, end.)

In addition, LMSW is pursuing participation by other parties holding major quantities of spectrum in these frequency services for the proposed ATLIS. With participation of several of the largest other current spectrum holders in these services along with LMSW-Havens, the ATLIS spectrum would exceed 3 billion MHz Pops (15 MHz or more in most all of the nation). (See Exhibit 1, end, for comparison to the nationwide CMRS operators in terms of total MHz Pops. This reflects the capacity needed to service CI nationwide.)

LMSW-Havens' consultants include Ralph Haller of Fox Ridge Communications, Gettysburg, PA and Michele Farquhar of Hogan & Hartson, Washington, DC.

3. NTIA Study and Comments in FCC DA 02-361: Need for ATLIS

The NTIA Study presents an overview of spectrum and wireless technology uses and needs of certain critical infrastructure industries. In this regard, below we map out a practical long-term solution for these and other critical infrastructure industries and applications.

The physical foundations to advance and sustain the nation are its man-made infrastructure (herein, "CI") and its ecosystems. Of our activities, CI uses the most, and returns the most burden upon, the ecosystems. They both require wireless networks far advanced from their current state for monitoring, protection, and efficient and effective operation. (See below regarding nationwide environmental wireless services.) They both require similar vast coverage and highest-quality technologies and systems. The proposed ATLIS will provide for both. Along with related Public Safety wireless, there is no more important wireless service.

For this CI wireless to advance as it should will require (i) appropriate large new spectrum allocations and (ii) much more advanced wireless technology and networks than exist or are discussed in the NTIA Study and Comments thereupon,[6] or than exist and are planned for commercial wireless (cellular, PCS, etc.). However, over the last few decades, the situation has become reversed: it is commercial wireless that has obtained far more advanced technology and network developments than CI, and the ultimate foundation of the economy and quality of life, the ecosystems, are hardly "wired" at all, lacking a needed electronic web of monitoring and protection, which must largely be via wireless.

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[6] Neither the NTIA study nor Comments thereupon substantially discussed new technologies that may be used to increase spectrum efficiency, performance, and types of services. Without considering technology and network deployment architecture, and without defining grades of service to be satisfied, capacity to provide for wireless needs can at best only be very roughly estimated.

For such CI wireless to succeed, it first needs a large appropriate spectrum base (in addition to current spectrum held and fully or mostly used by CI). This spectrum base will justify the development of advanced technology specific to CI wireless, and the long-term planning and implementation of networks providing the needed enhanced and new applications. The ATLIS proposal is designed to fulfill this need.

4. ATLIS, Further Discussion

ATLIS Description in Other FCC Proceedings. See Exhibit 3 below, Comments by LMSW-Havens in the FCC docket regarding the 75-MHz-wide 5.9 GHz band allocated for Intelligent Transportation System ("ITS") Dedicated Short Range Communications ("DSRC").[7] In these Comments, LMSW-Havens discusses NIRS, the same as ATLIS in these Reply Comments to the NTIA CI spectrum study. *The availability and value the three spectrum bands, as well as other matters, is provided in this existing FCC filing, Exhibit 3*. Exhibit 3 includes at its end two depictions of basic ATLIS network architecture.

[7] As noted in these Comments in the 5.9 GHz proceeding, Havens also gave similar proposals of NIRS (ATLIS) (i) in the FCC docket regarding 217-220 MHz AMTS: PR Docket No. 92-257: see Comments and Reply Comments of Warren C. Havens to the *Third Further Notice of Proposed Rule Making*, released November 16, 2000, and (ii) in the FCC docket on "Reallocation of the . . . Government Transfer Bands" (including 216-220 MHz) WT Docket No. 02-08: see Comments and Reply Comments of Warren C. Havens to the *Notice of Proposed Rule Making*, released February 6, 2002.

5. ATLIS Stage 1 and Stage 2, FCC Rule Changes and Relief

These are outlined at the end of Exhibit 2 below.

In ATLIS, the 902-928 MHz LMS spectrum would be the core spectrum, carrying most of the traffic and being most widely deployed. 900 MHz is good for such purposes in terms of propagation. It is also in the band most used worldwide for wireless: GSM 900 MHz, and thus, very cost effective components are and will remain available. Spectrum in the ranges good for such wide-area cost effective coverage, including via portables (roughly 400 to 1000 MHz) is rare—there is not much left in substantial quantities. Thus, it is important to take a hard look at this ATLIS proposal and grant the relief outlined in Exhibit 3 needed for enabling commencement of ATLIS via LMS. If 902-928 MHz LMS is fragmented and not used for ATLIS as proposed, it will be hard to find another comparable opportunity for the nation's Critical Infrastructure.

Respectfully submitted,

WarrenHavens

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Exhibit 1

Warren C. Havens and Telesaurus Holdings GB LLC
(dba LMS Wireless)

Lists and maps of FCC Licenses
and related matters

Location and Monitoring (904-910 MHz) (6 MHz licenses)

VHF Public Coast (156/162 MHz) (350 kHz licenses)

AMTS (217-220 MHz) (1 MHz licenses)

220-222 MHz (.25 to 1 MHz per area)

(~1.3 billion MHz Pops total: see last page for comparison with major CMRS operators.)

Exhibit 1 (cont'd)

Location and Monitoring Service (LMS) licenses and coverage map

LMS A-Block licenses[8] (see Exhibit 2 for description of 'A' Block and other LMS sub bands)

Market #	Block	**Market Name**	Pops	Licensee [9]
BEA001	A	Bangor, ME	533135	FCR, Inc.
BEA002	A	Portland, ME	694793	FCR, Inc.
BEA003	A	Boston-Worcester-Lawrence-Lowell-Brockton, MA-NH	7445016	Havens
BEA004	A	Burlington, VT-NY	568377	Telesaurus
BEA008	A	Buffalo-Niagara Falls, NY-PA	1529735	FCR, Inc.
BEA009	A	State College, PA	798826	Telesaurus
BEA010	A	New York-No. New Jer.-Long Island, NY-NJ-CT-PA-M	23919008	Havens
BEA011	A	Harrisburg-Lebanon-Carlisle ,	1026459	Telesaurus
BEA012	A	Philadelphia-Wilmington-Atl. City, PA-NJ-DE-MD	6915860	Havens
BEA013	A	Washington-Baltimore, DC-MD-VA-WV-PA	7454633	Havens
BEA014	A	Salisbury, MD-DE-VA	290800	Telesaurus
BEA015	A	Richmond-Petersburg, VA	1247627	Havens
BEA016	A	Staunton, VA-WV	301626	Telesaurus
BEA017	A	Roanoke, VA-NC-WV	760378	Telesaurus
BEA018	A	Greensboro-Winston-Salem-High Point, NC-VA	1604323	Havens
BEA019	A	Raleigh-Durham-Chapel Hill, NC	1412330	Havens
BEA021	A	Greenville, NC	743407	Telesaurus
BEA023	A	Charlotte-Gastonia-Rock Hill, NC-SC	1626519	Havens
BEA024	A	Columbia, SC	815834	Havens
BEA027	A	Augusta-Aiken, GA-SC	536809	Telesaurus
BEA028	A	Savannah, GA-SC	550623	Havens
BEA029	A	Jacksonville, FL-GA	1557922	Havens
BEA030	A	Orlando, FL	2836481	Havens
BEA031	A	Miami-Fort Lauderdale, FL	4538394	Havens
BEA032	A	Fort Myers-Cape Coral, FL	487212	Havens
BEA033	A	Sarasota-Bradenton, FL	624323	Havens
BEA034	A	Tampa-St. Petersburg-Clearwater, FL	2067959	FCR, Inc.
BEA035	A	Tallahassee, FL-GA	610116	Havens
BEA036	A	Dothan, AL-FL-GA	307026	Telesaurus
BEA037	A	Albany, GA	415342	Telesaurus
BEA038	A	Macon, GA	626336	Telesaurus
BEA039	A	Columbus, GA-AL	449582	Telesaurus
BEA040	A	Atlanta, GA-AL-NC	4067704	FCR, Inc.
BEA041	A	Greenville-Spartanburg-Anderson, SC-NC	1083199	Havens
BEA043	A	Chattanooga, TN-GA	635535	Telesaurus
BEA044	A	Knoxville, TN	840395	Telesaurus
BEA045	A	Johnson City-Kingsport-Bristol	524270	FCR, Inc.

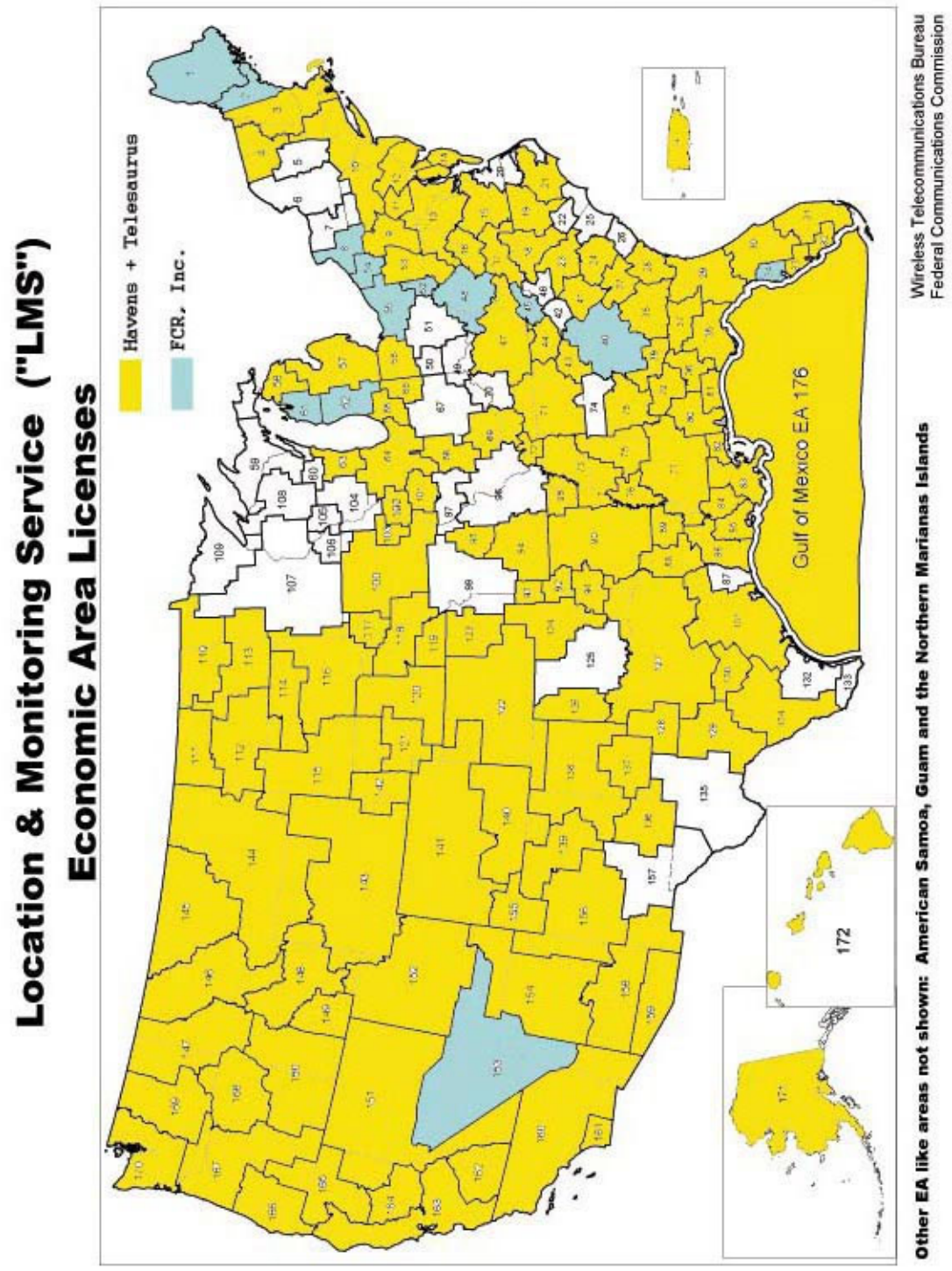
[8] Notes:

1. W. Havens has controlling interest in Telesaurus Holdings.
2. FRC Inc. owner, Bruce Fox, is interested in a joint venture or merger.
3. Other A-block licenses not listed had high bids in second LMS auction from another entity: these are currently subject to petition to deny before FCC.

[9] "Telesaurus" = Telesaurus Holdings GB, LLC. "Havens" = Warren C. Havens.

BEA047	A	Lexington, KY-TN-VA-WV	1731306	Havens
BEA048	A	Charleston, WV-KY-OH	1196043	FCR, Inc.
BEA052	A	Wheeling, WV-OH	346375	FCR, Inc.
BEA053	A	Pittsburgh, PA-WV	3003172	Telesaurus
BEA054	A	Erie, PA	512673	FCR, Inc.
BEA055	A	Cleveland-Akron, OH-PA	4564666	FCR, Inc.
BEA056	A	Toledo, OH	1278722	Telesaurus
BEA057	A	Detroit-Ann Arbor-Flint, MI	6626919	Havens
BEA058	A	Northern Michigan, MI	230066	Telesaurus
BEA061	A	Traverse City, MI	238720	FCR, Inc.
BEA062	A	Grand Rapids-Muskegon-Holland,	1666950	FCR, Inc.
BEA063	A	Milwaukee-Racine, WI	2119557	Havens
BEA064	A	Chicago-Gary-Kenosha, IL-IN-WI	9317947	Havens
BEA065	A	Elkhart-Goshen, IN-MI	864201	Telesaurus
BEA066	A	Fort Wayne, IN	666421	Telesaurus
BEA068	A	Champaign-Urbana, IL	623541	Telesaurus
BEA069	A	Evansville-Henderson, IN-KY-IL	825644	Telesaurus
BEA071	A	Nashville, TN-KY	2002283	Havens
BEA072	A	Paducah, KY-IL	211179	Telesaurus
BEA073	A	Memphis, TN-AR-MS-KY	1687817	Havens
BEA075	A	Tupelo, MS-AL-TN	577246	Telesaurus
BEA076	A	Greenville, MS	257239	Telesaurus
BEA077	A	Jackson, MS-AL-LA	1328647	Havens
BEA078	A	Birmingham, AL	1450463	Telesaurus
BEA079	A	Montgomery, AL	440228	Havens
BEA080	A	Mobile, AL	607965	Havens
BEA081	A	Pensacola, FL	515942	Telesaurus
BEA082	A	Biloxi-Gulfport-Pascagoula, MS	339791	Telesaurus
BEA083	A	New Orleans, LA-MS	1635720	Havens
BEA084	A	Baton Rouge, LA-MS	656284	Havens
BEA085	A	Lafayette, LA	554665	Telesaurus
BEA086	A	Lake Charles, LA	523289	Telesaurus
BEA088	A	Shreveport-Bossier City, LA-AR	555385	Telesaurus
BEA089	A	Monroe, LA	326897	Telesaurus
BEA090	A	Little Rock-North Little Rock, AR	1447083	Havens
BEA091	A	Fort Smith, AR-OK	286113	Telesaurus
BEA092	A	Fayetteville-Springdale-Rogers	285955	Telesaurus
BEA093	A	Joplin, MO-KS-OK	233725	Telesaurus
BEA094	A	Springfield, MO	499681	Telesaurus
BEA095	A	Jonesboro, AR-MO	290104	Telesaurus
BEA098	A	Columbia, MO	321564	Telesaurus
BEA100	A	Des Moines, IA-IL-MO	1604609	Telesaurus
BEA101	A	Peoria-Pekin, IL	523719	Telesaurus
BEA102	A	Davenport-Moline-Rock Island,	548257	Telesaurus
BEA103	A	Cedar Rapids, IA	341001	Telesaurus
BEA110	A	Grand Forks, ND-MN	240827	Telesaurus
BEA111	A	Minot, ND	116054	Telesaurus
BEA112	A	Bismarck, ND-MT-SD	172204	Telesaurus
BEA113	A	Fargo-Moorhead, ND-MN	347670	Telesaurus
BEA114	A	Aberdeen, SD	84696	Telesaurus
BEA115	A	Rapid City, SD-MT-ND-NE	199782	Telesaurus
BEA116	A	Sioux Falls, SD-IA-MN-NE	478307	Telesaurus
BEA117	A	Sioux City, IA-NE-SD	239518	Telesaurus
BEA118	A	Omaha, NE-IA-MO	958815	Telesaurus
BEA119	A	Lincoln, NE	341684	Telesaurus
BEA120	A	Grand Island, NE	277509	Telesaurus

BEA121	A	North Platte, NE-CO	60432	Telesaurus
BEA122	A	Wichita, KS-OK	1094213	Telesaurus
BEA123	A	Topeka, KS	444800	Telesaurus
BEA124	A	Tulsa, OK-KS	1259636	Telesaurus
BEA126	A	Western Oklahoma, OK	144847	Telesaurus
BEA127	A	Dallas-Fort Worth, TX-AR-OK	6180783	Havens
BEA128	A	Abilene, TX	213430	Telesaurus
BEA129	A	San Angelo, TX	189093	Telesaurus
BEA130	A	Austin-San Marcos, TX	922307	Havens
BEA131	A	Houston-Galveston-Brazoria, TX	4567679	Havens
BEA134	A	San Antonio, TX	1741991	Havens
BEA136	A	Hobbs, NM-TX	185128	Telesaurus
BEA137	A	Lubbock, TX	357092	Telesaurus
BEA138	A	Amarillo, TX-NM	448258	Telesaurus
BEA139	A	Santa Fe, NM	208689	Telesaurus
BEA140	A	Pueblo, CO-NM	247124	Telesaurus
BEA141	A	Denver-Boulder-Greeley, CO-KS-NE	3031140	Havens
BEA142	A	Scottsbluff, NE-WY	91975	Telesaurus
BEA143	A	Casper, WY-ID-UT	382095	Havens
BEA144	A	Billings, MT-WY	362513	Telesaurus
BEA145	A	Great Falls, MT	163284	Telesaurus
BEA146	A	Missoula, MT	333984	Telesaurus
BEA147	A	Spokane, WA-ID	691806	Havens
BEA148	A	Idaho Falls, ID-WY	263379	Havens
BEA149	A	Twin Falls, ID	136831	Havens
BEA150	A	Boise City, ID-OR	408246	Havens
BEA151	A	Reno, NV-CA	511004	Havens
BEA152	A	Salt Lake City-Ogden, UT-ID	1635998	Havens
BEA153	A	Las Vegas, NV-AZ-UT	943702	FCR, Inc.
BEA154	A	Flagstaff, AZ-UT	299753	Havens
BEA155	A	Farmington, NM-CO	150155	Telesaurus
BEA156	A	Albuquerque, NM-AZ	762814	Havens
BEA158	A	Phoenix-Mesa, AZ-NM	2365002	Havens
BEA159	A	Tucson, AZ	794180	Havens
BEA160	A	Los Angeles-Riverside-Orange County, CA-AZ	15891818	Havens
BEA161	A	San Diego, CA	2498016	Havens
BEA162	A	Fresno, CA	1168970	Havens
BEA163	A	San Francisco-Oakland-San Jose, CA	8033134	Havens
BEA164	C	Sacramento-Yolo, CA	1935487	Telesaurus
BEA165	A	Redding, CA-OR	307572	Telesaurus
BEA166	A	Eugene-Springfield, OR-CA	689659	Havens
BEA167	A	Portland-Salem, OR-WA	2310060	Havens
BEA168	A	Pendleton, OR-WA	176129	Telesaurus
BEA169	A	Richland-Kennewick-Pasco, WA	545747	Telesaurus
BEA170	A	Seattle-Tacoma-Bremerton, WA	3445064	Havens
BEA171	A	Anchorage, AK	550043	Telesaurus
BEA172	A	Honolulu, HI	1108229	Telesaurus
BEA174	A	Puerto Rico and U.S. Virgin Is	3623846	Telesaurus
BEA176	A	Gulf of Mexico	0	Telesaurus



Note: the numbered areas are EA (Economic Area) markets. Boundaries of the EA's in part follow State boundaries (check any road atlas). We can provide a lists of all EA's listing their component counties and States.

Exhibit 1 (cont'd)

AMTS Licenses

Automated Marine Telecommunications System ("AMTS") licenses of Warren C. Havens.

AMTS, for several decades, has been licensed along much of the US coasts, Great Lakes, and Mississippi River system for commercial shipping. Havens is the first to obtain AMTS for navigable inland waterways used for recreational boating.[10] The waterways below fall into this class. Ralph Haller, former Chief of the FCC Private Radio Bureau and Gary Stanford, a former engineer at the FCC, prepared Havens' AMTS applications.

Although historically allocated for marine traffic, for years AMTS licensees have been permitted by FCC rule to provide land mobile with no limit (and fixed station services) as long as they offer priority to parties desiring service for marine use. Following are key aspects of Havens' AMTS licenses:

- 217.5-218 MHz + 219.5-220 MHz: 1 MHz total (e.g., 40 12.5-kHz channels). (Also includes certain rights, on low power basis, to 250 kHz in 216-217 MHz.)
- Exclusive spectrum (not shared). No incumbents.
- Any modulation and channelization may be use (47 CFR 80.481).
- High power at each station: generally 100 watts or more ERP or higher EIRP.
- Each license has a number of specific station sites licensed (see below: "Primary Stations"): these are high HAAT sites with large coverage and interference-contours.
- Anywhere within the composite interference contour of the primary stations of each multi-site license can be placed "fill-in" sites as long as their coverage contour remains within this composite contour. Primary Stations can be relocated in similar fashion as well.
- CMRS, but may elect to provide PMRS.
- Interconnect and non-interconnect dispatch services permitted.
- Land mobile service permitted on primary-use basis.
- Fixed services permitted on a co-primary basis with mobile operations.
- May also use AMTS frequencies for fixed services on secondary basis to support AMTS system deployment in remote locations at which other communication facilities are not available (47 CFR 80.477).
- 47 dBu service contour coverage maps of each granted license (and pending application) are separately available to appropriate parties.

[10] Outdoor recreation on and around major inland waterways is a large high-growth industry not well covered and served by CMRS and other wireless.

Waterway	Covered Market(s)	# of Primary Stations
Lake Mead	Las Vegas	2
Great Salt Lake	Salt Lake City metro	2
Carson River	Reno	2
Salt River	Phoenix and up Salt River Valley	3
Verde River	Phoenix up to Flagstaff	3
South Platte River	Denver, west to Vail & Aspen, & east to Nebraska	6

In addition to the above granted AMTS licenses, Warren Havens has AMTS applications pending for navigable parts of the following rivers and adjacent covered markets:

Trinity and Brazos Rivers	Dallas–Fort Worth
Colorado and Guadalupe Rivers	Austin and San Antonio
San Antonio River	San Antonio
Lake Mohave	Las Vegas to Laughlin
Upper Rio Grande River	Albuquerque to Santa Fe
Provo River	Provo to Park City
Truckee River	Lake Tahoe to Reno
Arkansas Headwaters	Vail/Aspen to Pueblo/Col. Springs
Arkansas–MCKARNS	Tulsa to Little Rock
Missouri River (nav. channel)	Omaha to Kansas City
Upper Chattahoochee River	Atlanta and northeast
Hawaii coastline	Hawaii Islands
Kings River	Fresno and surrounding Central Valley
Owens River	Owens Valley US-395 corridor
Acadia coastline	Acadia National Park

We can discuss the situation with the pending applications with interested reviewers of this document. We and our advisors believe we have a good case for getting these granted. We intend to pursue administrative and judicial appeals as needed to obtain grants.

Exhibit 1 (cont'd)

VPC Licenses and map

VHF Public Coast ("VPC") licenses of Warren Havens and Telesaurus Holdings GB LLC.

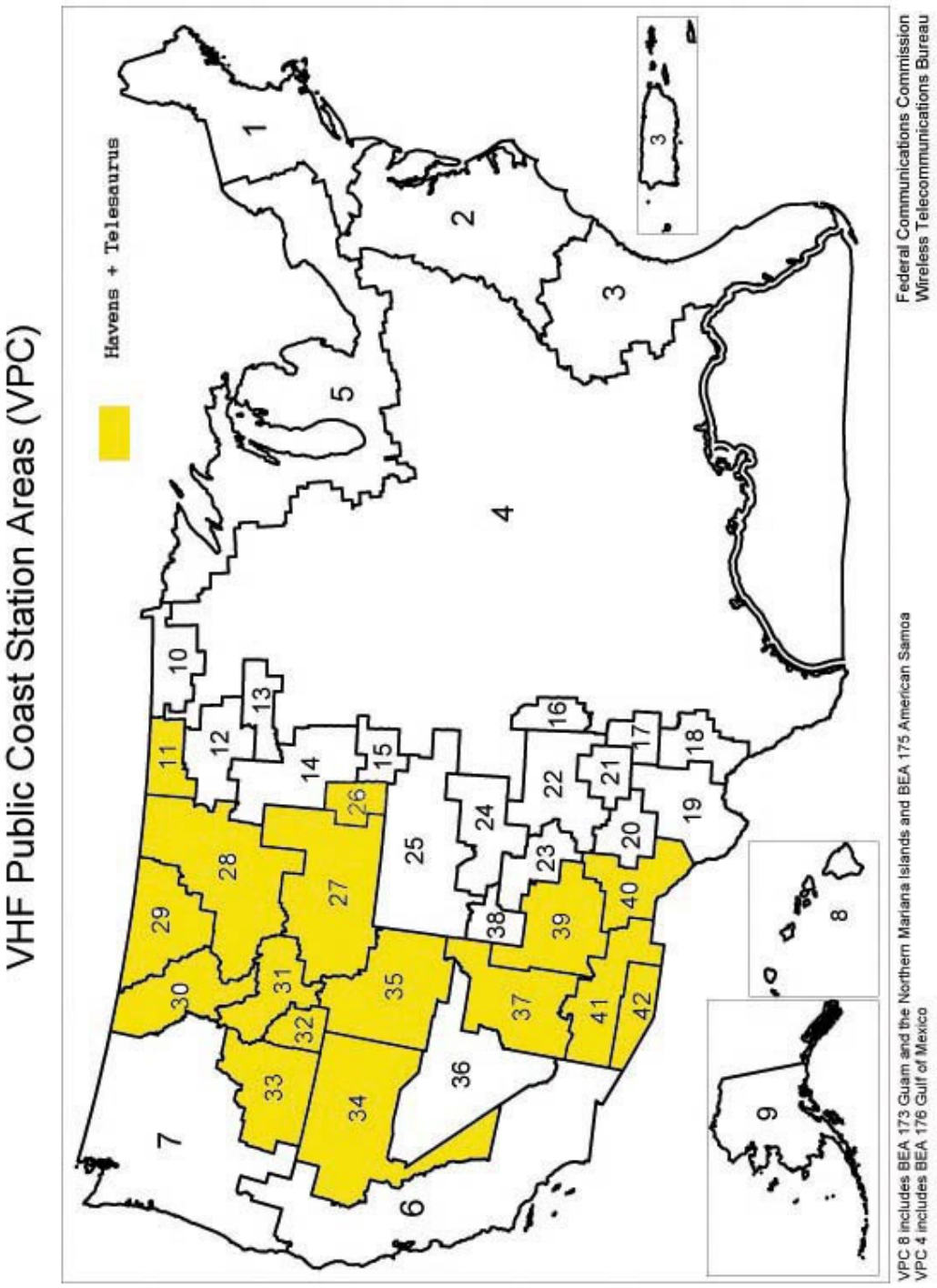
VPC, for many years, has been licensed along much of the US coasts for commercial shipping. In an FCC auction in December 1999, the FCC auctioned the VPC spectrum in geographic licenses (EA areas). In that auction Havens bought the eleven licenses listed below, and in the second VPC auction, in 2001, Telesaurus bought the three licenses listed.

Although they still retain the "Public Coast" nomenclature, these auctioned licenses can be used for land mobile and fixed wireless. Where the licensee elects to provide RF coverage that covers a major waterway (this is not required) the system must provide a "watch" on the nearby marine Channel 16 if the Coast Guard does not provide such a watch. That is the remaining obligation for marine service for inland-EA VPC licensees.

Following are key aspects of Havens' Inland VPC licenses:

- 157 paired with 162 MH: 350 kHz total: 14 12.5-kHz channels or 7 25-kHz channels.
- Exclusive spectrum (not shared). No incumbents in most areas, a few channels encumbered in a few areas (at least, licenses still listed in FCC files).
- EA geographic licenses: can place stations within the EA.
- Interconnect and non-interconnect dispatch services permitted.
- Land mobile service permitted on primary-use basis (see narrative above).
- Fixed services permitted on a co-primary basis with mobile operations.

License	Market Name (EA)	Population	Licensee
VPC011	Minot, ND	116054	Telesaurus Holdings
VPC026	Scottsbluff, NE-WY	91975	Telesaurus Holdings
VPC027	Casper, WY-ID-UT	382,095	Warren C. Havens
VPC028	Billings, MT-WY	362,513	Warren C. Havens
VPC029	Great Falls, MT	163,284	Warren C. Havens
VPC030	Missoula, MT	333,984	Warren C. Havens
VPC031	Idaho Falls, ID-WY	263,379	Warren C. Havens
VPC032	Twin Falls, ID	136,831	Warren C. Havens
VPC033	Boise City, ID-OR	408,246	Warren C. Havens
VPC034	Reno, NV-CA	511,004	Warren C. Havens
VPC035	Salt Lake City-Ogden, UT-ID	1,635,998	Warren C. Havens
VPC037	Flagstaff, AZ-UT	299,753	Warren C. Havens
VPC039	Albuquerque, NM-AZ	762,814	Warren C. Havens
VPC040	El Paso, TX-NM	807501	Telesaurus Holdings
VPC041	Phoenix-Mesa, AZ-NM	2,365,002	Warren C. Havens
VPC042	Tucson, AZ	794,180	Warren C. Havens



Note: the numbered areas from 8 and higher are EA (Economic Area) markets. Boundaries of the EA's in part follow State boundaries (check any road atlas). We can provide lists of all EA's listing their component counties and States.

Exhibit 1 (cont'd)

220-222 MHz Licenses

220-222 MHz licenses of Net Radio Group Communications (nrg) and Warren Havens (wh) obtained at FCC auctions, end 1998 and mid 1999. Mr. Havens founded and has indirect equity and majority debt interests in NRG.)[11]

Rules for this "220 MHz" service are well known. Major features include:

- 5 kHz channels, but adjacent channels can be combined to form wider channels.
    - Note: NRG bought at FCC auction channel blocks (designated below by capital letters, A, B, G, F, etc.) that in large part provided such adjacent channels: 15 kHz and wider when combined. Amount of 220 MHz per EA below ("BEA" is same as "EA") may be determined by adding the kHz figures for all licenses in the EA with the spectrum from the EAG in which such EA falls. (The FCC website, under the 220 MHz first auction, has a cross reference of EAG's and EA's. Generally, the Central/Mountain and Pacific EAG's cover the western 60% of the nation, from about the Missouri River west, including Texas.
- Exclusive spectrum (not shared). Some single-site incumbents in major markets; however, it many of these are not in actual operation and the FCC is currently investigating and will cancel those that are not operating.
- EAG and EA ("BEA" is same as "EA") geographic licenses: can place stations within the EA. An EAG is composed of many EA's to form a multi-state region of the nation.
- Interconnect and non-interconnect-dispatch services permitted.
- Land mobile service permitted on primary-use basis.
- Fixed services permitted on a co-primary basis with mobile operations.

A map of all 220 MHz license areas follows the below list of our licenses. *(Match the license number with the corresponding market on the map to see the coverage of the below listed licenses.)*

In the below, "wh" = Warren Havens; "nrg" = Net Radio Group Communications (in which Warren Havens has equity and debt interests noted above).

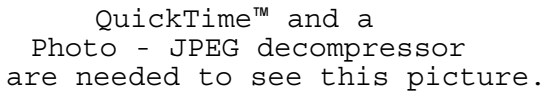
[11] Mr. Havens expects to exercise his rights to obtain control of the company or its assets in near future.

License		kHz	Market	Population		Licensee
EAG001	**G**	**150**	**Northeast**	**41,567,654**		----wh
EAG005	**F**	**150**	**Central/Mountain**	**40,926,336**		nrg
EAG005	**G**	**150**	**Central/Mountain**	**40,926,3**		nrg
EAG005	**H**	**150**	**Central/Mountain**	**40,926,336**		nrg
EAG006	**G**	**150**	**Pacific**	**41,437,956**		nrg
EAG006	**H**	**150**	**Pacific**	**41,437,956**		nrg
BEA001	A	100	Bangor, ME	533,135		----wh
BEA001	B	100	Bangor, ME	533,135		----wh
BEA001	C	100	Bangor, ME	533,135		----wh
BEA001	E	100	Bangor, ME	533,135		----wh
BEA002	A	100	Portland, ME	694,793		----wh
BEA004	A	100	Burlington, VT-NY	568,377		----wh
BEA004	B	100	Burlington, VT-NY	568,377		----wh
BEA004	D	100	Burlington, VT-NY	568,377		----wh
BEA006	C	100	Syracuse, NY-PA	1,934,632		----wh
BEA006	D	100	Syracuse, NY-PA	1,934,632		----wh
BEA009	C	100	State College, PA	798,826		----wh
BEA011	A	100	Harrisburg-Lebanon-Carlisle, P	1,026,459		----wh
BEA013	C	100	Washington-Baltimore, DC-MD-VA	7,454,633		----wh
BEA014	D	100	Salisbury, MD-DE-VA	290,800		----wh
BEA016	A	100	Staunton, VA-WV	301,626		----wh
BEA016	C	100	Staunton, VA-WV	301,626		----wh
BEA045	E	100	Johnson City-Kingsport-Bristol	524,270		----wh
BEA053	A	100	Pittsburgh, PA-WV	3,003,172		----wh
BEA053	C	100	Pittsburgh, PA-WV	3,003,172		----wh
BEA058	A	100	Northern Michigan, MI	230,066		----wh
BEA058	D	100	Northern Michigan, MI	230,066		----wh
BEA059	A	100	Green Bay, WI-MI	624,600		----wh
BEA059	C	100	Green Bay, WI-MI	624,600		----wh
BEA060	A	100	Appleton-Oshkosh-Neenah, WI	380,610		----wh
BEA061	A	100	Traverse City, MI	238,720		----wh
BEA061	B	100	Traverse City, MI	238,720		----wh
BEA061	D	100	Traverse City, MI	238,720		----wh
BEA063	B	100	Milwaukee-Racine, WI	2,119,557		----wh
BEA091	E	100	Fort Smith, AR-OK	286,113		----wh
BEA092	D	100	Fayetteville-Springdale-Rogers	285,955		----wh
BEA094	C	100	Springfield, MO	712,422		----wh
BEA105	C	100	La Crosse, WI-MN	220,502		----wh
BEA105	D	100	La Crosse, WI-MN	220,502		----wh
BEA108	A	100	Wausau, WI	451,533		----wh
BEA108	B	100	Wausau, WI	451,533		----wh
BEA109	A	100	Duluth-Superior, MN-WI	340,675		----wh
BEA109	B	100	Duluth-Superior, MN-WI	340,675		----wh
BEA109	C	100	Duluth-Superior, MN-WI	340,675		----wh
BEA109	D	100	Duluth-Superior, MN-WI	340,675		----wh
BEA110	A	100	Grand Forks, ND-MN	240,827		----wh
BEA110	B	100	Grand Forks, ND-MN	240,827		----wh
BEA110	C	100	Grand Forks, ND-MN	240,827		----wh
BEA110	D	100	Grand Forks, ND-MN	240,827		----wh
BEA110	E	100	Grand Forks, ND-MN	240,827		nrg
BEA111	A	100	Minot, ND	116,054		----wh

BEA111	B	100	Minot, ND	116,054		----wh
BEA111	C	100	Minot, ND	116,054		----wh
BEA111	D	100	Minot, ND	116,054		----wh
BEA111	E	100	Minot, ND	116,054		----wh
BEA112	A	100	Bismarck, ND-MT-SD	172,204		----wh
BEA112	B	100	Bismarck, ND-MT-SD	172,204		----wh
BEA112	C	100	Bismarck, ND-MT-SD	172,204		----wh
BEA112	D	100	Bismarck, ND-MT-SD	172,204		----wh
BEA112	E	100	Bismarck, ND-MT-SD	172,204		nrg
BEA113	B	100	Fargo-Moorhead, ND-MN	347,670		----wh
BEA113	C	100	Fargo-Moorhead, ND-MN	347,670		----wh
BEA113	D	100	Fargo-Moorhead, ND-MN	347,670		----wh
BEA113	E	100	Fargo-Moorhead, ND-MN	347,670		nrg
BEA114	C	100	Aberdeen, SD	84,696		----wh
BEA114	D	100	Aberdeen, SD	84,696		----wh
BEA114	E	100	Aberdeen, SD	84,696		nrg
BEA115	C	100	Rapid City, SD-MT-ND-NE	199,782		----wh
BEA115	D	100	Rapid City, SD-MT-ND-NE	199,782		----wh
BEA115	E	100	Rapid City, SD-MT-ND-NE	199,782		nrg
BEA116	A	100	Sioux Falls, SD-IA-MN-NE	478,307		nrg
BEA116	B	100	Sioux Falls, SD-IA-MN-NE	478,307		nrg
BEA116	C	100	Sioux Falls, SD-IA-MN-NE	478,307		nrg
BEA116	D	100	Sioux Falls, SD-IA-MN-NE	478,307		nrg
BEA116	E	100	Sioux Falls, SD-IA-MN-NE	478,307		nrg
BEA117	A	100	Sioux City, IA-NE-SD	239,518		nrg
BEA117	B	100	Sioux City, IA-NE-SD	239,518		nrg
BEA117	C	100	Sioux City, IA-NE-SD	239,518		nrg
BEA117	D	100	Sioux City, IA-NE-SD	239,518		nrg
BEA117	E	100	Sioux City, IA-NE-SD	239,518		nrg
BEA118	B	100	Omaha, NE-IA-MO	958,815		nrg
BEA118	C	100	Omaha, NE-IA-MO	958,815		nrg
BEA118	D	100	Omaha, NE-IA-MO	958,815		nrg
BEA118	E	100	Omaha, NE-IA-MO	958,815		nrg
BEA119	C	100	Lincoln, NE	341,684		nrg
BEA119	E	100	Lincoln, NE	341,684		nrg
BEA120	C	100	Grand Island, NE	277,509		----wh
BEA120	D	100	Grand Island, NE	277,509		----wh
BEA120	E	100	Grand Island, NE	277,509		nrg
BEA121	C	100	North Platte, NE-CO	60,432		----wh
BEA121	D	100	North Platte, NE-CO	60,432		----wh
BEA121	E	100	North Platte, NE-CO	60,432		nrg
BEA122	B	100	Wichita, KS-OK	1,094,213		nrg
BEA122	C	100	Wichita, KS-OK	1,094,213		nrg
BEA122	E	100	Wichita, KS-OK	1,094,213		nrg
BEA126	D	100	Western Oklahoma, OK	144,847		----wh
BEA129	E	100	San Angelo, TX	189,093		----wh
BEA135	E	100	Odessa-Midland, TX	382,517		----wh
BEA137	D	100	Lubbock, TX	357,092		----wh
BEA138	C	100	Amarillo, TX-NM	448,258		----wh
BEA138	D	100	Amarillo, TX-NM	448,258		----wh
BEA139	B	100	Santa Fe, NM	208,689		nrg
BEA139	C	100	Santa Fe, NM	208,689		nrg
BEA139	D	100	Santa Fe, NM	208,689		nrg

BEA139	E	100	Santa Fe, NM	208,689		nrg
BEA140	A	100	Pueblo, CO-NM	247,124		nrg
BEA140	B	100	Pueblo, CO-NM	247,124		nrg
BEA140	C	100	Pueblo, CO-NM	247,124		nrg
BEA140	D	100	Pueblo, CO-NM	247,124		nrg
BEA140	E	100	Pueblo, CO-NM	247,124		nrg
BEA141	C	100	Denver-Boulder-Greeley, CO-KS-NE	3,031,140		nrg
BEA141	D	100	Denver-Boulder-Greeley, CO-KS-NE	3,031,140		nrg
BEA142	C	100	Scottsbluff, NE-WY	91,975		----wh
BEA142	D	100	Scottsbluff, NE-WY	91,975		----wh
BEA142	E	100	Scottsbluff, NE-WY	91,975		nrg
BEA143	A	100	Casper, WY-ID-UT	382,095		nrg
BEA143	B	100	Casper, WY-ID-UT	382,095		nrg
BEA143	C	100	Casper, WY-ID-UT	382,095		nrg
BEA143	D	100	Casper, WY-ID-UT	382,095		nrg
BEA143	E	100	Casper, WY-ID-UT	382,095		nrg
BEA144	A	100	Billings, MT-WY	362,513		nrg
BEA144	B	100	Billings, MT-WY	362,513		nrg
BEA144	C	100	Billings, MT-WY	362,513		nrg
BEA144	D	100	Billings, MT-WY	362,513		nrg
BEA144	E	100	Billings, MT-WY	362,513		nrg
BEA145	A	100	Great Falls, MT	163,284		nrg
BEA145	B	100	Great Falls, MT	163,284		nrg
BEA145	C	100	Great Falls, MT	163,284		nrg
BEA145	D	100	Great Falls, MT	163,284		nrg
BEA145	E	100	Great Falls, MT	163,284		nrg
BEA146	A	100	Missoula, MT	333,984		nrg
BEA146	B	100	Missoula, MT	333,984		nrg
BEA146	C	100	Missoula, MT	333,984		nrg
BEA146	D	100	Missoula, MT	333,984		nrg
BEA146	E	100	Missoula, MT	333,984		nrg
BEA148	A	100	Idaho Falls, ID-WY	263,379		nrg
BEA148	B	100	Idaho Falls, ID-WY	263,379		nrg
BEA148	C	100	Idaho Falls, ID-WY	263,379		nrg
BEA148	D	100	Idaho Falls, ID-WY	263,379		nrg
BEA148	E	100	Idaho Falls, ID-WY	263,379		nrg
BEA149	A	100	Twin Falls, ID	136,831		nrg
BEA149	B	100	Twin Falls, ID	136,831		nrg
BEA149	C	100	Twin Falls, ID	136,831		nrg
BEA149	D	100	Twin Falls, ID	136,831		nrg
BEA149	E	100	Twin Falls, ID	136,831		nrg
BEA150	A	100	Boise City, ID-OR	408,246		nrg
BEA150	B	100	Boise City, ID-OR	408,246		nrg
BEA150	C	100	Boise City, ID-OR	408,246		nrg
BEA150	D	100	Boise City, ID-OR	408,246		nrg
BEA150	E	100	Boise City, ID-OR	408,246		nrg
BEA151	A	100	Reno, NV-CA	511,004		nrg
BEA151	B	100	Reno, NV-CA	511,004		nrg
BEA151	C	100	Reno, NV-CA	511,004		nrg
BEA151	D	100	Reno, NV-CA	511,004		nrg
BEA152	A	100	Salt Lake City-Ogden, UT-ID	1,635,998		nrg
BEA152	B	100	Salt Lake City-Ogden, UT-ID	1,635,998		nrg
BEA152	D	100	Salt Lake City-Ogden, UT-ID	1,635,998		nrg

BEA152	E	100	Salt Lake City-Ogden, UT-ID	1,635,998		nrg
BEA153	C	100	Las Vegas, NV-AZ-UT	943,702		nrg
BEA153	D	100	Las Vegas, NV-AZ-UT	943,702		nrg
BEA154	A	100	Flagstaff, AZ-UT	299,753		nrg
BEA154	B	100	Flagstaff, AZ-UT	299,753		nrg
BEA154	C	100	Flagstaff, AZ-UT	299,753		nrg
BEA154	D	100	Flagstaff, AZ-UT	299,753		nrg
BEA154	E	100	Flagstaff, AZ-UT	299,753		nrg
BEA155	A	100	Farmington, NM-CO	150,155		nrg
BEA155	B	100	Farmington, NM-CO	150,155		nrg
BEA155	C	100	Farmington, NM-CO	150,155		nrg
BEA155	D	100	Farmington, NM-CO	150,155		nrg
BEA155	E	100	Farmington, NM-CO	150,155		nrg
BEA156	A	100	Albuquerque, NM-AZ	762,814		nrg
BEA156	C	100	Albuquerque, NM-AZ	762,814		nrg
BEA156	D	100	Albuquerque, NM-AZ	762,814		nrg
BEA156	E	100	Albuquerque, NM-AZ	762,814		nrg
BEA157	A	100	El Paso, TX-NM	807,501		nrg
BEA157	D	100	El Paso, TX-NM	807,501		nrg
BEA158	B	100	Phoenix-Mesa, AZ-NM	2,365,002		nrg
BEA158	C	100	Phoenix-Mesa, AZ-NM	2,365,002		nrg
BEA159	A	100	Tucson, AZ	794,180		nrg
BEA159	B	100	Tucson, AZ	794,180		nrg
BEA159	E	100	Tucson, AZ	794,180		nrg
BEA162	E	100	Fresno, CA	1,168,970		nrg
BEA164	D	100	Sacramento-Yolo, CA	1,935,487		nrg
BEA164	E	100	Sacramento-Yolo, CA	1,935,487		nrg
BEA165	A	100	Redding, CA-OR	307,572		nrg
BEA165	B	100	Redding, CA-OR	307,572		nrg
BEA165	C	100	Redding, CA-OR	307,572		nrg
BEA165	D	100	Redding, CA-OR	307,572		nrg
BEA165	E	100	Redding, CA-OR	307,572		nrg
BEA169	E	100	Richland-Kennewick-Pasco, WA	545,747		nrg
BEA171	A	100	Anchorage, AK	550,043		nrg
BEA171	B	100	Anchorage, AK	550,043		nrg
BEA171	C	100	Anchorage, AK	550,043		nrg
BEA171	D	100	Anchorage, AK	550,043		nrg
BEA171	E	100	Anchorage, AK	550,043		nrg
BEA172	B	100	Honolulu, HI	1,108,229		nrg
BEA172	C	100	Honolulu, HI	1,108,229		nrg
BEA172	D	100	Honolulu, HI	1,108,229		nrg


QuickTime™ and a
Photo - JPEG decompressor
are needed to see this picture.

Below is a chart from an FCC report with text inserted (in this typeface, as can be distinguished) by LMSW-Havens. [10-3-01: This was originally prepared in year 2000. *The "LMSW-Havens" figures do not include another approx. 200 million MHz Pops of LMS spectrum obtained in 2001.]*

There have been some mergers and acquisitions since the report was written by a number of the listed companies. However, this chart still reflects well the relative potential of LMSW-Havens and ATLIS (as planned) in relation to the largest US mobile wireless operations.

Before the
Federal Communications Commission
Washington, DC 20554

In the Matter of	)
	)
Implementation of Section 6002(b) of the	)
Omnibus Budget Reconciliation Act of	)
1993	)
	)
Annual Report and Analysis of	)
Competitive Market Conditions	)
With Respect to Commercial Mobile	)
Services	)

FOURTH REPORT

Adopted: June 10, 1999 Released: June 24, 1999

By the Commission;

Table 3: Mobile Telephone Industry Top 50 Operators

(In Millions)

Company	Cellular POPs (1)	ABC POPs (1)	DEF POPs (1)	Broadband POPs (2) Total	Rank	Broadband MHz-POPs (3) Total	Rank	Unduplicated Brdbnd. POPS (4) Total	Rank
AT&T	81.29	114.85	151.70	347.84	1	6,609.25	1	235.98	2
Sprint PCS		188.89	90.87	279.76	2	6,575.37	2	265.05	1
LMSW-Havens + other cooperative, current						2,675.00	4	270.00	1
LMSW-Havens + other " , after second FCC licensing stage (~Y 2001)						3,776.00	4	270.00	1
ALL LMS band (all 902-928 MHz) (potential)						6,890.00	2	270.00	1 [12]
All ATLIS wide-area as conceived (all LMS band, + 217-222 MHz, not incl. 5.9 GHz)						7,950.00	1	270.00	1 [13]
LMSW-Havens LMS (current, not incl. its VHF & 220 MHz: over 1 bil. incl.)						1,240.00	12	207.00	4 [14]
Nextel Comm.				230.00	3	2,300.00	4	230.00	3
Nextwave Telecom		111.87	53.86	165.73	4	3,894.69	3	165.73	4
Omnipoint Comm.		32.67	98.98	131.65	5	1,772.11	8	93.71	5
AirTouch Comm. (5)	64.67		21.03	85.70	6	1,827.05	6	64.67	8
SBC (6)	45.36	35.55	2.29	83.20	7	2,223.28	5	83.20	6
Western Wireless (7)	7.73	19.99	46.43	74.15	8	1,210.85	12	73.17	7
ALLTEL	35.28		32.40	67.68	9	1,206.05	13	55.63	13
GTE Mobilnet	52.32	11.08		63.40	10	1,640.33	9	61.81	9
BellSouth	38.91	7.72	13.59	60.22	11	1,340.16	11	58.64	11
Primeco		59.08		59.08	12	1,772.31	7	59.08	10
Bell Atlantic (5)	56.80			56.80	13	1,420.00	10	56.80	12
Northcoast Oper. Co.			47.86	47.86	14	478.64	19	47.86	14
Powertel	0.33	17.80	12.74	30.87	15	669.62	16	24.54	19
Ameritech (6)	22.00	8.26		30.26	16	797.76	15	30.11	15
Century Tele. Ent.	9.77		19.72	29.49	17	441.46	20	29.40	16
Aerial Comm.		27.87		27.87	18	836.14	14	27.49	17
US Cellular	25.27			25.27	19	631.67	17	25.27	18
US West		3.56	20.16	23.72	20	237.19	25	23.72	20
Aerforce			21.82	21.82	21	218.18	26	21.55	21
General Wireless	20.38			20.38	22	509.38	18	20.38	22
Comcast (6)	8.26		9.91	18.17	23	305.53	21	11.56	28
Rivgam Comm.			17.32	17.32	24	173.22	29	17.32	23
Telecorp PCS (8)		9.89	4.94	14.83	25	247.15	23	14.83	24
Cook Inlet/WW (SEC) (7)		2.98	9.83	12.81	26	142.95	32	12.81	25
Triton PCS (8)	0.91	11.01		11.92	27	242.90	24	11.92	26
Mercury PCS (PK)		2.50	9.16	11.65	28	129.03	34	11.65	27
Centennial Cellular	7.00	3.77		10.77	29	288.06	22	10.77	29
Dobson Comm. (SEC)	5.58		4.20	9.78	30	181.39	28	9.78	30
Devon Mobile (PK)		0.95	8.54	9.49	31	99.70	40	9.49	31
Urban Comm. PCS (PK)		3.47	4.42	7.89	32	148.28	31	7.89	32
21 st Cent. Telesis (PK)		4.32	3.51	7.83	33	99.83	39	7.83	33
Radiofone	2.19		5.22	7.41	34	106.98	38	7.41	34
Pocket Comm.		7.33		7.33	35	109.89	37	7.33	35
Magnacom (PK)		1.77	5.47	7.23	36	81.17	43	7.23	36
McLeod, Inc.			7.15	7.15	37	71.47	46	7.15	37
Puerto Rico Telephone (9)	3.52		3.52	7.04	38	123.27	35	3.52	46
Vanguard Cellular	6.80			6.80	39	170.11	30	6.80	38
Chase Telecom		6.16		6.16	40	184.89	27	6.16	39
American Cellular	5.17			5.17	41	129.35	33	5.17	40

[Nine of the current top 50 companies excluded for this chart to fit on this page.]

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[12] Expanded means including the 12 MHz in 902-928 MHz that is currently licensed mostly for short-range ITS communications which should migrate to the ITS 5.9 GHz band over time.

[13] ATLIS = Advanced Technology Land Infrastructure Service, as elsewhere described by Havens.

[14] The LMS held by Warren Havens and by Telesaurus Holdings controlled by Havens.

[The figures in red: MHz- Pops, are best indicators of capacity.]

Notes:
(1) All of the operators' POPs equal their total net POPs. Net POPs are calculated for each individual license by multiplying that license's population by the operator's percentage ownership of the license.
(2) Broadband POPs are the sum of cellular, ABC block PCS, and DEF block PCS POPs.
(3) Broadband MHz-POPs equals cellular POPs multiplied by 25 MHz plus AB block PCS POPs multiplied by 30 MHz plus C block PCS POPs multipled by either 15 MHz or 30 MHz plus DEF block PCS POPs multiplied by 10 MHz.
(4) Unduplicated POPs adjusts Broadband POPs to account for a licensee having multiple licenses in the same geographic area.
(5) PrimeCo is owned by AirTouch (50%), Bell Atlantic (50%).
(6) SBC Communications has announced plans to merge with both Ameritech and Comcast.
(7) Cook Inlet Western is a joint venture in which Western Wireless owns 49.9%.
(8) Telecorp, Triton PCS and Cincinnati Bell have entered into joint ventures with AT&T
(9) Acquired by GTE.

Sources: Unless otherwise noted, Dennis Leibowitz et al, THE WIRELESS COMMUNICATIONS INDUSTRY, Donaldson, Lufkin & Jenrette, Winter 1998/1999, at 100-173.
PK - Paul Kagan Associates, Inc., *Tops in Wireless POPs*, WIRELESS MARKET STATS, Aug. 25, 1997, at 8-9. These figures have been adjusted for the June 1998 C block elections.
SEC - Filings made with the Securities and Exchange Commission.
Nextel Broadband POPs - Paul Kagan Associates, Inc., *Tops in Wireless POPs*, WIRELESS MARKET STATS, Aug. 25, 1997, at 8.
Nextel Broadband MHz-POPs - Calculated assuming an average of 10 MHz across all licenses. *See* John M. Bensche & Briar Mewbourne, *Nextel Communications: Initiating Coverage*, Wireless Services, Lehman Brothers, Sep. 3, 1997, at 8.

Exhibit 2

Location and Monitoring Service ("LMS") spectrum:
- **Sub bands, current rules**
- **Power, channelization, modulation, etc., current rules**
- **Services and hierarchy, current rules**
- **FCC rule changes and waivers or forbearance to be proposed for ATLIS**

LMS Sub-bands for
- **Wide Area ("Multilateration") Systems and**
- **Short-Range ("Non-Multilateration") Systems**

(See §90.357)

"Multilateration" LMS systems provide wide area communications (see following pages) to provide coverage of extensive roadway networks and other infrastructure over entire regions or nationwide.

"Non-Multilateration" systems provide very short range highly directional communications: mostly I.D."tag" readers on roadway and railway vehicles with range of several hundred feet.

LMS "Multilateration" spectrum (MHz)

Block	Wide band	Narrow band	Total
A*	904.00 - 909.75	927.75 - 928.00	
	= 5.75	= .25	= 6.00
B **	*919.75 - 921.75*	*927.25 - 927.50*	
	= 2.00	*= .25*	*= 2.25*
C	921.75 - 927.25	927.50 - 927.75	
	= 5.50	= .25	= 5.75
			14.00

** The 'B' block wideband is equally shared with Non-Multilateration systems.*

**Havens-Telesaurus have 'A' block spectrum (see map).

Non-Multilateration Spectrum (MHz):

902.00 - 904.00	= 2.00
* 909.75 - 921.75	= 12.00
919.75 - 921.75	*= 2.00*
	14.00

** Equally shared with 'B' block wideband (see above chart note).*

LMS power, channelization, modulation, etc.[15] (wide-area LMS systems)

Next section: see §90.205; §90.357(a)(1) note 1; and §90.209(m)

- 30 watts maximum ERP for base and end-user radios.
- 300 watts ERP maximum for base radios on the 250 kHz part of the 'A' block near 928 MHz.
- Any channelization and modulation as long as attenuation at edges of the block are achieved.
- Peak power of any emission shall be attenuated below the power of the highest emission contained within the authorized channel bandwidth in accordance with the following schedule:
  1. On any frequency within the authorized bandwidth: Zero dB.
  2. On any frequency outside of the authorized bandwidth: 55+10log(P) dB where (P) is the highest emission (watts) of the transmitter inside the authorized bandwidth.
  3. The resolution bandwidth of the instrumentation used to measure the emission power shall be 100 kHz. If a video filter is used, its bandwidth shall not be less than the resolution bandwidth.
  4. Emission power (P) shall be measured in peak values.
- Frequency tolerance: see § 90.213 :
  Fixed and base stations: 2.5 parts per million
  Mobile stations: 2.5 parts per million

[15] Current rules: see rule sections cited above. We will seek some changes to these technical rules in the ATLIS proposal to the FCC: see below Section 5 of this Exhibit 1.

Exhibit 2 (cont'd)

LMS services and hierarchy, current rules

Services (wide-area systems)

1. Location and Monitoring: Must provide location, or location and monitoring, services for vehicles, and may provide such for other animate and inanimate things. Network- based location determination (TDoA or AoA);GPS may assist.

2. Non-PSN Voice and Data: May provide, related to or associated with the location or monitoring functions, job-oriented (status and instructional) voice and two-way data communication services[16] that is not interconnected via the Public Switched Network ("PSN"), i.e., via private networks including Intranets, and Internet.
(Note: neither private communication networks nor the Internet employs "interconnection" with the PSN. Even dedicated leased lines from a phone company operating a PSN are not part of the PSN since they are taken out of the switched network and dedicated to a private network.)

3. PSN Voice and Data: May provide PSN-interconnected voice and real-time two-way data for emergency communications to and from public-safety and dispatch entities, as well as PSN-interconnected two-way data on a store-and-forward basis for non-emergency.
(Note: Real-time two-way data via Internet or Intranets permitted for non-emergency permitted as noted in preceding paragraph. Real-time data relaying location and monitoring (item 1 above) is permitted by whatever means transmitted to and from end-users and our System: private networks or PSN.)

Users of and Hierarchy in 902-928 MHz

1. Federal radiolocation and ISM: top in hierarchy -- §90.353 (a).
Federal: There is and to date has been only very slight use by the military. They use this band for some radar on military ships, but their practice is to turn off this radar when coming to port, and at times in the past for wind-sheer profile or other radar. NTIA contact person on LMS generally confirmed above to Havens at end September 2001. (Also, the Federal entities did not comment to the FCC during the LMS rulemaking phase, as noted by the FCC in such rulemaking proceedings.)
ISM devices are used indoor and do not receive, nor have transmit antennas. Wide-area LMS networks must not interfere with such devices. (We see no difficulty in this.)

[16] Per the FCC discussion in the LMS rulemaking proceedings, this involves the above-described communications (i.e., non-PSN voice and data for status and instructional communications) related to or associated with the vehicle, person, or other animate or inanimate thing being served by the required location and/or monitoring functions. For CI wireless systems that use such location and/or monitoring for land, rail, or other vehicles and/or their occupants and cargo-- virtually all such system's voice and data would fit in this broad category. Such CI communication is status and instructions; and it does involve (or will be enhanced by being associated with) the periodic or constant locating/monitoring of such business's mobile assets and personnel.

2. LMS: second in hierarchy-- §90.353.
   No limit on duty cycles/ traffic. Generally, may place transmitters anywhere within the geographic licenses territory. See below above section for technical parameters.

3. Part 15 and Amateur radio: last in hierarchy-- §90.361.
   Part 15 LANs, indoor cordless, etc. (e.g., Metricom Ricochet)[17]: have no vested rights to use 902-928 MHz: they may use it on an unlicensed, low-power, low-height, non-interfering basis to the LMS operations. They must accept interference from LMS system and end-user radios. Have a defined "Safe Harbor" in which they are assumed to be not interfering.
   Amateur radio may use this band, but only on the same basis as Part 15 devices just described. The FCC has found little use by amateurs, as noted in LMS rulemaking proceedings.

- Non-Multilateration Systems. Very short-range radio systems used by highway toll-collection facilities, railroads, etc. Have their own LMS sub-band spectrum allocations (see above section) apart from Blocks A and C allocated to LMS Multilateration wide-area systems, thus not of concern to development of 'A' and 'C' Block LMS.
  Among others, LMS licensees may apply for networks of Non-Multilateration licenses.

[17] Metricom led before the FCC the Part 15 ad hoc coalition with respect to Part 15 use of 902-928 MHz. Metricom filed bankruptcy in year 2001 and sold its Ricochet network assets for nominal sums (relative to cost). Prior to the bankruptcy, LMSW-Havens had commenced a joint computer-simulation technical study with Metricom regarding effects of LMS and Ricochet networks on each other.

Exhibit 2 (cont'd)

LMS Band:
FCC Rule Changes and Waivers or Forbearance to be Proposed for ATLIS
(Advanced Technology Land Infrastructure Service)

Outline of Key Elements[18]
(Full proposals to be submitted to FCC by ~end May 2002)
(The full proposals will also relate to the other ATLIS spectrum)

For ATLIS Phase 1

For LMSW-Havens Wide-Area LMS Block A licenses:
Waiver or Forbearance Request to Enable ATLIS Phase 1:

Submitted in conjunction with the rulemaking proposal below to sustain ATLIS Phase 1 and provide for ATLIS Phase 2.

1. Lift the 5-year construction milestone; keep the 10-year milestone as is.

   (No equipment yet available; major ATLIS development per below takes time, even to re-band current technology to LMS for ATLIS Phase 1; etc.)

2. Allow any type wireless for wide-area LMS ATLIS, even with no location component, prior to meeting the 10-year milestone, at which time location (and other particular service components) may be required per then-demonstrated needs of CI, including ITS CI.

   (Item 1: dedication to CI, in the proposed new rules [next page] would be a condition.)
   (Secondary service permitted to non-CI if priority access maintained for CI.)
   (Revenues per this allowance will help support ATLIS Phase 1 and 2 developments.)

3. Allow use of (some, TBD) Non-Multilateration LMS spectrum for wide-area LMS ATLIS. In this regard, LMSW-Havens would consent to use of their A-block LMS spectrum by Non-Multilateration system operators.

   (Non-Multilateration systems would be fully protected. It would be unlikely that wide-area LMS would interfere with very short-range highly directional Non-Multilateration systems anyway.)

4. Increase power limit from current 30 watts ERP to (TBD)

   (Valuable to optimize ATLIS, especially for cost effective Phase 1 wide-area coverage, and where building ATLIS via existing CI entity base station sites spaced for 800 MHz or below using high power.)

[18] This presentation is not a formal or immutable proposal to the FCC by LMSW-Havens but reflects what LMSW-Havens expects to present formally in the near future as noted above.

ATLIS Phase 2

For LMSW-Havens Wide-Area LMS Block A licenses, and the other wide-area A, B, and C, as well as the Non-Multilateration LMS spectrum (i.e., the entire 902-928 MHz band):
Proposed Revised Rules to Sustain ATLIS Phase 1 and Enable ATLIS Phase 2

Submitted in conjunction with the waiver or forbearance request noted above to commence Phase 1.

1. LMS band dedicated/ restricted to CI, broadly defined

   902-928 MHz would be dedicated to, with minor exceptions restricted to serve,[19] US Critical Infrastructure including roadways and ITS, utilities, pipelines, rail, airports, and federal and state land management entities and public and private environmental monitoring (like CI, these have vast areas to cover).

   Also permitted as an ITS ("Intelligent Transportation System") function, if the U.S. Department of Transportation in the future enacted the mandate, would be Federally mandated basic "Telematics" wireless service to vehicles for key safety and efficiency functions on the nation's roadways.[20]

   On an ancillary basis, Public Safety entities could also be served (they could use ATLIS for redundancy, additional capacity, and interoperability), and if sufficient capacity remained, some business enterprise as well: those needing the advanced workforce and infrastructure wireless that ATLIS would be optimized to provide.

2. LMS band protected and optimization for CI

   "In exchange" for the restrictions on LMS multilateration licenses to serving CI, and to optimize LMS for serving CI:

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[19] Via spectrum leasing or sales, band-manager type sub licensing, or network joint ownership ventures or build-lease arrangements partnering with equipment vendors and network integrators.

[20] Such potential mandate has been discussed in ITS forums. Examples: (i) Basic safety: vehicle location, emergency crash notification, E911 voice calls and paging; notification of adverse road and weather conditions; reporting abusive speed and moving violations, pollutants emitted, and unsafe mechanical conditions; etc. (ii) Efficiency and pollution abatement: HOV (high occupancy vehicle) and LEV (low emission vehicle) authorization to use special lanes and facilities and bypass tolls; integration with DSRC stations ("EZ" pass, etc.) to authorize tolls prior to the highway or parking toll collection facility; best-route navigation advisories (via on board radio and any data or multimedia terminal) to save time and fuel; etc. Like seat belts that have become mandatory, people and the environment need such mandatory basic wireless capabilities: r*oadway transportation is too dangerous, congested, and polluting to not require it.* ATLIS could provide this as part of its ITS (Intelligent Transportation System) functions.

a. Part 15 phased out of 902-928 by end of 2005.
No new consumer devices on the market after 2005, and no external (via fixed antennas outside buildings or intended to transmit outside) Part 15 systems on the air after 2005.

Part 15 devices and LAN's are moving to the wider exclusive 2.4 and 5 GHz Part 15 bands anyway. And what is left of outdoor 900 MHz Part 15[21] is in large part used by CI, and CI would be better off using 902-928 MHz via high-power licensed ATLIS, including for greater reliability and lower costs.[22]

b. Federal use frozen, or phased out over by end of 2008.
Frozen at what it is now (very light use: some Navy ship radar, and occasional use on military installations) or phased out entirely over ~6 years. As noted above, the Federal entities with rights to use LMS spectrum submitted no comments in the LMS rulemaking, reflecting their nominal use of and interest in this band.[23]

c. LMS wide-area A- and C- block licensees may use all, or most all, of the non-multilateration spectrum in 902-928, in exchange for allowing non-multilateration licensees

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[21] Metricom led before the FCC the Part 15 ad hoc coalition with respect to Part 15 use of 902-928 MHz. Metricom filed bankruptcy in year 2001 and sold its Ricochet network assets for nominal sums (relative to cost). As may in the industry projected, it was not cost effective to build and operate an external wide-area network of Part 15 transmitters with needed very large numbers of low-power transmitters. This cost would have increased greatly, if the network were to sustain its coverage and performance, once high-power LMS networks were in operation.

[22] Even factoring in the cost of spectrum, for most wide area applications, high-power exclusive-license ATLIS systems would provide lower cost of coverage (along with higher reliability and control). Part 15 equipment is generally more expensive than comparable license-based equipment also. As the NITA Study and Comments thereupon noted, due to its unprotected and low-power nature, Part 15 is at best a temporary or secondary solution for CI. It is also a waste of 900 MHz spectrum to use it for the relatively short-range capability and nature of Part 15 systems: 2.4 and 5 GHz are better for that.

[23] The Military would get "credit" in terms of "spectrum contributions" to the non-Federal community. This may count toward protecting from reallocation their spectrum that they use more or have more plans to use. Also, a central function of the proposed CI use would be homeland security, a current key Federal goal, including current military objective.

In addition, LMSW-Havens have proposed to the DARPA "XG" 4G wireless development project that this XG project have, as a key focus in its systems development phase, the LMS band as proposed herein for ATLIS. This has been discussed with Dr. Paul Kolodzy, formerly head of this DARPA project, now Chairman of the FCC Spectrum Policy Task Force and senior spectrum policy advisor in the FCC Office of Engineering and Technology. As the Commission wrote: "Dr. Kolodzy is charged with examining spectrum allocation processes and other issues so that spectrum can be put to the highest and best use in a timely manner."

to use all, or most all, of their LMS spectrum.

LMS Non-Multilateration short-range system operators and equipment vendors have expressed interest (including in FCC rulemaking proceedings on LMS) in use of the LMS spectrum allocated to wide area systems. This proposal would satisfy this interest and benefit them by doubling the spectrum for their short-range communication stations: from 14 MHz (12 MHz exclusive and 2 MHz shared) to 26 MHz (all of 902-928 MHz).

This concept of sharing spectrum has already been effectuated in LMS: in the B-block wideband: *919.75 - 921.75: see Exhibit 2,*

In their use of this entire 26 MHz, Non-Multilateration systems would be fully protected from harmful interference by the wide-area systems use of the same 26 MHz. It would be unlikely that wide-area LMS stations would cause harmful interference to the very short-range highly directional Non-Multilateration stations anyway. The burden would be on the wide-area stations in the vicinity of the short-range stations to minimize interference from the short-range stations within the short-range stations effective transmission contours.

Per this ATLIS proposal, the other, non-LMS wide-area ATLIS spectrum (in the 200 MHz range) could be used by ATLIS wide-area mobile services when vehicles (or persons) are in the range of these short-range stations. Or, there may be a "dead-spot" in the wide area system's coverage created by the short-range stations' directional transmission contours (which are geographically very small, generally within several hundred feed).

In addition, the LMS wide area systems may be required to provide, on not-for-profit basis, services to short-range stations and networks within its area of coverage: (i) traffic back haul to PSTN and Internet connection facilities (the wide area systems would all have such connections), (ii) transfer of data useful to advanced short-range stations which the wide-area operation obtained via provision of DOT-mandated Telematics service to vehicles (see above section 1 of this ATLIS Phase 2 FCC proposal), (iii) potential FCC-DOT mandated support of advanced dedicated short-range communications ("DSRC") stations and networks (there should be well integrated mandated wireless for safety and efficiency on the highways).

Also, in ATLIS Phase 2, there could be active coordination between the wide-area and short-range stations (each system knowing the digital spectrum assignment codes of the other to share the spectrum in time slots, but priority given to the short-range stations).

d. Any type wireless permitted for wide-area LMS ATLIS, even with no location component, prior to meeting the 10-year milestone, at which time location (and other particular service components) may be required per then-demonstrated needs of CI, including ITS CI.

Exhibit 3

The following are Comments by LMSW-Havens in the 5.9 GHz (75 MHz wide) FCC spectrum allocation for Intelligent Transportation System applications.

In these Comments, by "National Infrastructure Radio Service" or "NIRS," I mean the same as what is described above as "Advanced Technology Land Infrastructure Service" or "ATLIS."

In the below, some formatting is changed and typographical errors fixed from the original. Comments added to original text are in brackets. Also, footnote numbering is changed from the original.

Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
ITS 5.9 GHz Band	)	DA 01-686
Licensing and Service Issues	)	PN released 3-22-01
	)	

To: Chief, Wireless Telecommunications Bureau

Comments
of Warren C. Havens and Telesaurus Holdings GB, LLC

I, Warren C. Havens, hereby submit comments in response to the Public Notice dated 3-22-01 in this matter: Intelligent Transportation System ("ITS") services in the 5.850- f.925 MHz Band ("5.9 GHz"), in particular, with respect to the "Status Report" on this matter submitted on October 6, 2000 by ITS America by John J. Collins and Robert B. Kelly (the "ITS Report").

I currently hold licenses in the A-block of the Location and Monitoring Service ("LMS") (the A-block is 6 MHz within the 902-928 MHz range) covering approximately 60% of the nation's population (including most all major markets). [Since this text was written, this has increased to 80%.] I also hold licenses in the VHF Public Coast Service ("VPC") covering most of the Rocky Mountain parts of the nation, in the 220-222 MHz Service ("220 MHz") in which, with Net Radio Communications LLC (in which I have a majority interest on a [contingent] fully diluted basis [)], I hold a plurality of spectrum in the Western 60% of the nation, and in the

Automated Marine Telecommunication System Service ("AMTS") in the 217-220 MHz band, in which I hold licenses for 1 MHz in large parts of Arizona, Nevada, and Utah [and Colorado], and have approximately one hundred additional station applications for other parts of the nation.

I will be transferring all or most of the above named licenses and applications, subject to FCC approval, to Telesaurus Holdings GB, LLC, ("Telesaurus") [or another entity as I may form] in which I will retain controlling interest. Telesaurus is backed by additional parties with regard to financing and is in the processing of selecting appropriate companies for technology and systems equipment, and systems deployment, operations, and marketing. In addition, Telesaurus is a participant in FCC Auction 39 (the second auction of licenses in the VPC and LMS bands: licenses not sold in the first auctions several years ago).

In addition, I have substantially discussed the views expressed herein with the two other parties holding geographic licenses in the LMS service: Progeny LMS LLC and FCR, Inc. While I do not speak for them, they have expressed to me their general interest in the views I express herein, based on such ideas promoting a more viable design and potential for of wireless communication systems for ITS functions.

In this regard, the FCC has designated this 5.9 GHz, along with LMS, as the two current Transportation Infrastructure Radio Services. The apparent logic behind this joint designation--both services were allocated for ITS wireless: the former for DSRC; the latter for wide-area location and related voice and data services--is the basis of the views expressed herein. The ITS master plan also calls for both DRSC and wide-area communication systems. The need for both is obvious and need not be discussed here. I will note that the existing wide-area services (via the various CMRS networks), are not designed for the needs of ITS, will not easily be adaptable for integration with advanced DSRC, and are very expensive due to the cost of the spectrum

involved and of the current 2G systems and the upcoming 2.5G and 3G technology upgrades and swap outs. For longer-range needs, ITS in the nation needs both 5.9 GHz and LMS to be planned and deployed in integrated fashion. This will provide a strong foundation of success of ITS in the United States, and this success is a high priority for public safety, pollution control, worker productivity, and a host of commercial services. ITS America has and has had a substantial participation from vendors, operator, and others involved in DSRC in the "Non-multilateration" sub bands within the 902-928 MHz band. It has not had much participation by LMS licensees since these licenses were issued on a geographic basis only recently, [24]and licensees have been, since licensing, working on fundamental issues (appropriate technology and deployment plans and partners, etc.).

I and Telesaurus have participated in ITS America and its 5.9 GHz stakeholder workshop held December 1999 (the "Workshop") (see Appendix A to the Report). In this regard, I included Ralph Haller, former Chief of the FCC Private Radio Bureau, and now head of Fox Ridge Communications, Inc.

The Report does not reflect the major comments I and Mr. Haller made at the Workshop or a follow-up white paper I submitted to ITS America. At the Workshop and in the white paper, Mr. Haller and I proposed that this ITS 5.9 GHz should be used nationwide 1) for the Dedicated Short Range Communications ("DSRC") services which the Workshop focused on, but also 2) for other ITS functions that would involve coordinated or integrated networks of wide-area LMS systems overlaying localized 5.9 GHz stations or systems, and 3) high-speed wireless Internet

[24] Some licenses issued in mid 1999, and others in mid 2000. Others (covering a substantial portion of the nation and substantial percentage of the population) will be licensed pursuant to FCC Auction 39 scheduled to commence June 6 of this year. After this auction, LMS will be fully licensed across the nation. This should lead to acceleration of deployment of these licenses.

services in the vast majority of the land mass of the nation away from highways and roads on which DSRC could be deployed.*[SEE NOTE[*]]* Herein, I summarize this proposal.

The essential rationale for our proposal was that any new spectrum allocation should be put to the highest and best use to justify the allocation and for it to be a success in the marketplace, and this involves expanding the use of the 5.9 GHz beyond DRSC on busy transportation routes to the uses noted above, and such expanded use will result in probably some orders of magnitude increase in volume of system and end-user-device components specific to 5.9 GHz which will be needed for its commercial success.

Indeed, one of the major reasons given by vendors and others at the Workshop for potential failure or slow pace of adoption of DRSC in 5.9 GHz was the high cost of components verses costs of current 900 MHz DRCS (in the 902-928 MHz range). The proposal outlined herein could solve that problem: by making the best and highest use of 5.9 GHz, advanced DSRC use of 5.9 GHz will be enhanced.

Multi-band nationwide ITS-focused networks: 5.9 GHz, LMS 902-928 MHz, and 217-225 MHz. [See depictions in the two Attachments below.] These three bands may be used for regional and ultimately nationwide ITS-focused networks, serving both public safety entities and applications, as well as commercial operators and applications related to transportation uses (mostly highway, but others also). Herein (and for other purposes),[25] we use the term "National

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[[*] LMSW-Havens, per the ATLIS proposal, revises this: rather than use for general wireless Internet in addition to ITS DSRC, LMSW-Havens proposes that, in addition to this 5.9 GHz spectrum being used for DSRC, that it also be used on a non-interference basis for other high-speed Critical Infrastructure wireless, such as real time video, whether via IP protocol and Internet or other means of transmission.]

[25] See, e.g., Comments of Warren Havens in PR Docket No. 92-257 filed on or about 2-6-01 (with regard to proposed new rules for AMTS).

Infrastructure Radio Service." The following is from the Comments I filed in PR Docket No. 92-257 on or about 2-6-01 (with regard to proposed new rules for AMTS):

> NIRS, 4 bands: AMTS . . . [would be, as proposed] designated as a National Infrastructure Radio Service ("NIRS") along with 220 MHz, LMS Multilateration[26] and LMS Non-Multilateration (together herein, "LMS"), and the recently allocated 5.9 GHz (a Transportation Infrastructure Radio Service) (herein, "5.9 GHz"), and all such NIRS be subject to certain rules to foster joint development for the purposes of NIRS. (See below, IVDS and 222-225 should also be integrated into NIRS.)
>
> These components listed above are discussed below after discussion of the overall concept. This concept is that AMTS and 220 MHz are still largely undeveloped,[27] as are LMS and 5.9 GHz, and together, these provide a needed combination of frequencies for the combination of macrocell, minicell, and picocell topologies needed for a nationwide service for major US infrastructure entities.[28] Such entities need a new integrated nationwide high-capacity[29] service to use as their primary radio service, or to use as a critical virtual-PMR adjunct (for redundancy, extra capacity, interoperability, and more advanced services) to their primary radio services, as further discussed below. I believe that what I am

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[26] LMS Multilateration licensed systems must provide wide-area location services and may provide associated voice and data, including (as I plan for my LMS licensed systems) voice and data largely over the Internet and Intranets (as opposed to the Public Switched Network) (but with PSN voice and data for emergency situations).

[27] These services, while in large part licensed, involve licenses that are very lightly loaded, and from evidence I have gained, pre-auction licenses reported as constructed are in many cases not actually in operation.

[28] Use of appropriate mobile satellite system for most remote areas may also be a valuable component of NIRS, such as the recently "rescued" Iridium system now targeted in large part to service important needs in remote areas not covered or not covered well by terrestrial wireless networks.

[29] Without a very large market created by such nationwide high capacity service, there is not sufficient volume to warrant the cost of development of advanced digital 3G or 4G technology (e.g., involving expensive ASICS and other components) and the manufacturing volumes needed to obtain sufficiently low cost and advanced features to be successful. The best evidence is GSM: a large market was created by the EC member nations requiring GSM and allocating the radio spectrum for GSM. It thus took off and has now dominated worldwide wireless. An example at the other end of the scale is 220 MHz in the US: it "flopped" as noted in the text and footnotes above, as has AMTS to date.

proposing here will be supported by the majority of existing licensees and "stakeholders" in the noted proposed component bands. [30] [31]

The proposed NIRS end-user "infrastructure" entities include two main classes ('a' and 'b' below), and two other user classes ('c' and 'd' below) that may choose to participate.

a. Private-sector utility and transport entities: utilities (electric, gas, water), pipelines, transportation entities (rail, trucking, local transit, marine, highway departments, airport ground services, some Telematics service providers such as AAA).

b. Public-Sector land and real property agencies:[32] i.e., under the US Department of Interior[33] and Department of Agriculture[34] and the analogous State entities, and other such entities, private and public, involved in developing, providing, or managing basic infrastructure-based services and or public lands.[35]

c. ITS core-function entities and functions: A concept being discussed by stakeholders in US "Intelligent Transportation Systems" (such as among members of the ITS America) involves mandatory or wide-spread use in highway-capable vehicles of basic ITS functions such as location-based services

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[30] I can discuss the basis of this with the FCC if the FCC decides to consider an alternative licensing scheme as I propose herein. Essentially, I believe (and have had substantial communications to support my belief) that such licensees will expect the best financial return by participation in NIRS as the highest and best use of their spectrum.

[31] I am involved in all these bands, including as a potential "stakeholder" in 5.9 GHz, designated by the FCC, along with LMS, as a Transportation Infrastructure Radio Service.

[32] Such public entities involve vast infrastructure to manage such lands and property, and thus have analogous wireless needs as the noted private sector infrastructure entities: both classes have vast physical improvements (roads, plant, buildings) and mobile workforce needing integrated mobile and fixed wireless over wide areas.

[33] National Park Service, BLM, etc.

[34] US Forest Service, Fish and Game, etc.

[35] There is a significant degree of correlation and interoperation between such private infrastructure entities and such public land and property entities, e.g., on rights of way, service to the public in emergencies, wide-area radio coverage needs; and both classes need similar advanced radio services with features far advanced from those offered by current two-way radio systems and current and planned CMRS. Both classes also need interoperation between other such "infrastructure" entities.

for crash and emergency notification and information, providing to highway departments real-time data on highway traffic flows; providing to law enforcement entities information regarding defined major motor vehicle violations.[36] NIRS could provide such basic Telematics functions by design more effectively and at less cost than CMRS. NIRS could also serve to integrate these wide-area mobile radio ITS functions with the DSRC functions of LMS non-multilateration and 5.9 GHz.[37]

d. Public Safety entities may also choose to be an end user of NIRS for such noted adjunct purposes, described further below.

The above-noted private-sector NIRS entities need NIRS for primary wireless services since they do not at this time hold or have set aside by the FCC sufficient allocation of radio spectrum set aside for their needs.[38] The above-noted public-sector NIRS entities need NIRS for critical adjunct wireless services since NIRS will provide an otherwise non-obtainable nationwide radio service with mission-critical features at a low cost (partly in trade for infrastructure-use rights), such adjunct services providing (in addition to such entities primary radio services on its dedicated spectrum) (i) redundancy and additional capacity for peak periods, emergencies, and failures of such primary service, (ii) interoperability among various such public-sector NIRS entities, with such private-sector NIRS entities, and with Public Safety entities who may also choose to use NIRS for such adjunct service. The use for ITS core functions is noted above and would be of substantial benefit to Highway Departments, Transit entities, Public Safety, and ultimately to US commerce and population in general as it would increase the safety and efficiency of roadway traffic.

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[36] E.g., speeding and certain unsafe driving, unsafe condition of the vehicle, lack of valid vehicle registration, etc.

[37] DSRC stands for Dedicated Short Range Communications. DSCR is used in non-multilateration LMS such as for "smart tag" readers (e.g., as used as the toll booths along the Dulles Airport access toll road in northern Virginia), and several dozen more advanced forms of DSRC (each involving a very short range fixed transmitter along a roadway or facility used by vehicles to transmit one- or two-way data to the vehicle or users in the vehicle). Such pico cells, normally isolated (in current practice and as planned by those planning DSRC for the new 5.9 GHz TIRS radio service), can be beneficially integrated with NIRS, such as by NIRS: linking the DSRC sites via its wide-area backhaul network, exchanging traffic flow data; clearing some vehicles for toll payment prior to reaching toll booths; etc.

[38] I have met with leaders of many of these entities in the last eighteen months (since obtaining the radio licenses listed in Exhibit 1 below) and base this needs assessment on the views expressed to me by such leaders and their internal needs assessments. I have also found first-tier wireless equipment vendors who have independently come to the same assessment. Expert consultants in wireless have also confirmed such assessment.

Today, Information Technology is leading the world economy and wireless is a leading component in IT, often projected to soon have more traffic than wired networks. [39] Change is occurring rapidly and in wireless, and a new technology good enough for any nationwide deployment involves billions of dollars in development and construction and years of work. For this, there must first exist the underlying spectrum available of sufficient quantity and nature. For the proposed NIRS in the US, the proposed four frequency bands are ideal and (as noted above) they are currently still largely "available." They are ideal as follows described below, and partially depicted in Exhibit 2 below.

217-222 MHz (of AMTS and the 220 MHz services, including also 217-218 "IVDS"),[40] extended to 225 MHz by reallocating the 222-225 Amateur band to NIRS,[41] and possibly also including most or all of 216-217 MHz[42]: Thus, 4

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[39] Even is close to correct, there will be a need for many times the spectrum that exists in total that is usable for wide-area systems (several GHz down to 100 MHz or thereabouts). The need for more spectrum for more and more advanced wireless is a major concern these days from commercial wireless operators and vendors, the FCC, Congress, the Executive Branch, and the Military (which wants to keep what it has in the face of demands to release spectrum to the burgeoning commercial wireless industry). NIRS as proposed herein should be seriously considered at this time for the critical US needs I have described while there exists the opportunity to develop NIRS around these four frequency bands. If not pursued at this time, LMS multilateration licensees will move on to other things-- we LMS licensees will have no other choice.

[40] IVDS, 220 MHz, and incumbent AMTS licensees could elect to become part of TIRS and adopt TIRS technology, and those that do not do so by the end of a certain reasonable period (such as the end of the first five after the end of the initial auction proposed herein of AMTS and 222-225 MHz) would be required to conform to TIRS technology and services.

[41] This band is not heavily used by Amateurs, e.g., as indicated by a review of catalogs of Amateur radio equipment. It is in the public interest to reallocate this to such NIRS purposes which are more critical to the US private and public sectors than the services contemplated by the FCC in the 3rd FNPRM for AMTS. I would propose that this reallocation licensing be done via auction at the same time as the AMTS auction and via the same NIRS-related Guard Band Manager scheme, but with the whole 222-222 MHz for the above described "NIRS Set-Aside" (proposed above for 1 of the 2 MHz in AMTS). In addition, by allocating 216-225 MHz or thereabouts as proposed, this frequency band component of NIRS could achieve approximately a 4 MHz separation in Tx and Rx frequencies, if used in pairs for frequency division duplex ("FDD"). However, we would probably propose use of time division duplex ("TDD") (which achieves full duplex via rapidly alternating Tx and Rx on one frequency, not on separated frequency pairs, and thus is used with unpaired blocks of spectrum) as the primary diplexing technique due to multiple advantages including simpler end-user radios, and more spectrum efficiency especially for the contemplated *variable* asymmetrical up- and down- link IP-centric traffic, and leveraging the precise timing at each base station that NIRS would have for

MHz total if only AMTS and 220 MHz, and 7-9 MHz total with such extension(s). This frequency range is ideal for a base macro-cell layer to cover the majority of the land mass of the US, including smaller cities towns, rural plants and facilities, rough terrain, highways and railroads linking major markets, and modest-speed data links to vehicles with high-power mobile radios and high-gain antenna. These may also be used for certain remote fixed services and point-to-point links.

902-928 MHz LMS: used for an overlaying mini-cell layer largely in the larger markets, busiest highway corridors, and other heavy use locations. These would also be used for a low-tier low-power "cordless phone" mode. (3G and 4G wireless generally contemplates both high-tier high-power mobile mode, and such low-tier mode, the two largely integrated.)

5.9 GHz: 75 MHz recently allocated by the FCC for ITS functions, used as noted above for DSRC. As proposed in this NIRS concept, it would also be used for high-speed backhaul, and where not needed along the highways for DSRC, it would be used for various peripatetic and fixed wireless services.[43]

The FCC should not move ahead at this time and auction AMTS. Due to the weaknesses in AMTS (and the adjacent 220 MHz service) noted above, and the fact that the FCC has already licensed AMTS covering the vast majority of the US population (and allowed "Fill-in" stations that will enable warehousing: see Exhibit 3 below), such an auction in the near future will yield small sums and not be yield the best use of AMTS. Instead, the FCC should via an appropriate rulemaking explore the NIRS concept for AMTS and the other noted bands . . . .

Summary [from this quoted text]

Today, Information Technology is leading the world economy and wireless is a leading component in IT, often projected to soon have more traffic than wired networks. [44] Change is occurring rapidly and in wireless, and a new

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providing GPS-based location technology required for LMS and NIRS (network assisted GPS location techniques for both constant and periodic wireless location applications).

[42] With the techniques available in the contemplated 4G NIRS technology noted herein, I believe the TV channels below 216 MHz could be protected and the current uses also protected. At least, this should be studied. A goal of such 4G, including the DARPA 4G initiative, is to develop technology that, among other things, increases spectrum efficiency via interference excision and sharing of bands by multiple users.

[43] As noted elsewhere herein, the 4G technology contemplated for NIRS will include techniques to enable sharing of a radio band by systems employing air interfaces whether directly overlaid or side-by-side.

[44] Even is close to correct, there will be a need for many times the spectrum that exists in total that is usable for wide-area systems (several GHz down to 100 MHz or thereabouts). The

technology good enough for any nationwide deployment involves billions of dollars in development and construction and years of work.

For this, there must first exist the underlying spectrum available of sufficient quantity and nature, along with suitable regulatory framework. "Advanced Technology 220 MHz" ("AT 220 MHz") as outlined below would contribute to this.

Also, public-resource-licensed commercial business (including FCC wireless licensees) should be held to higher "corporate citizen" standards than other private enterprise. In this regard, I propose below a "Nationwide Environmental Wireless Service" as a component of AT 220 MHz.

Finally, spectrum reallocation should be combined with FCC (and other Federal) support for US advanced wireless technology, "4G technology." One way to achieve this is noted below: support of the DARPA 4G initiative now underway.

As noted above, we propose that 5.9 GHz be used not only for DSRC but for high-speed backhaul functions of integrated DRCS and LMS wide-area ITS-focused networks (described above in the concept of NIRS), and for mobile and fixed high-speed wireless Internet services which would be operated by such integrated network for both ITS related functions and a broad array of commercial applications [ATLIS change: see footnote "*" preceding footnote 22 above: CI high speed wireless applications, not commercial ones]. See attached depictions.

We will comment further in Reply Comments.

Respectfully submitted,

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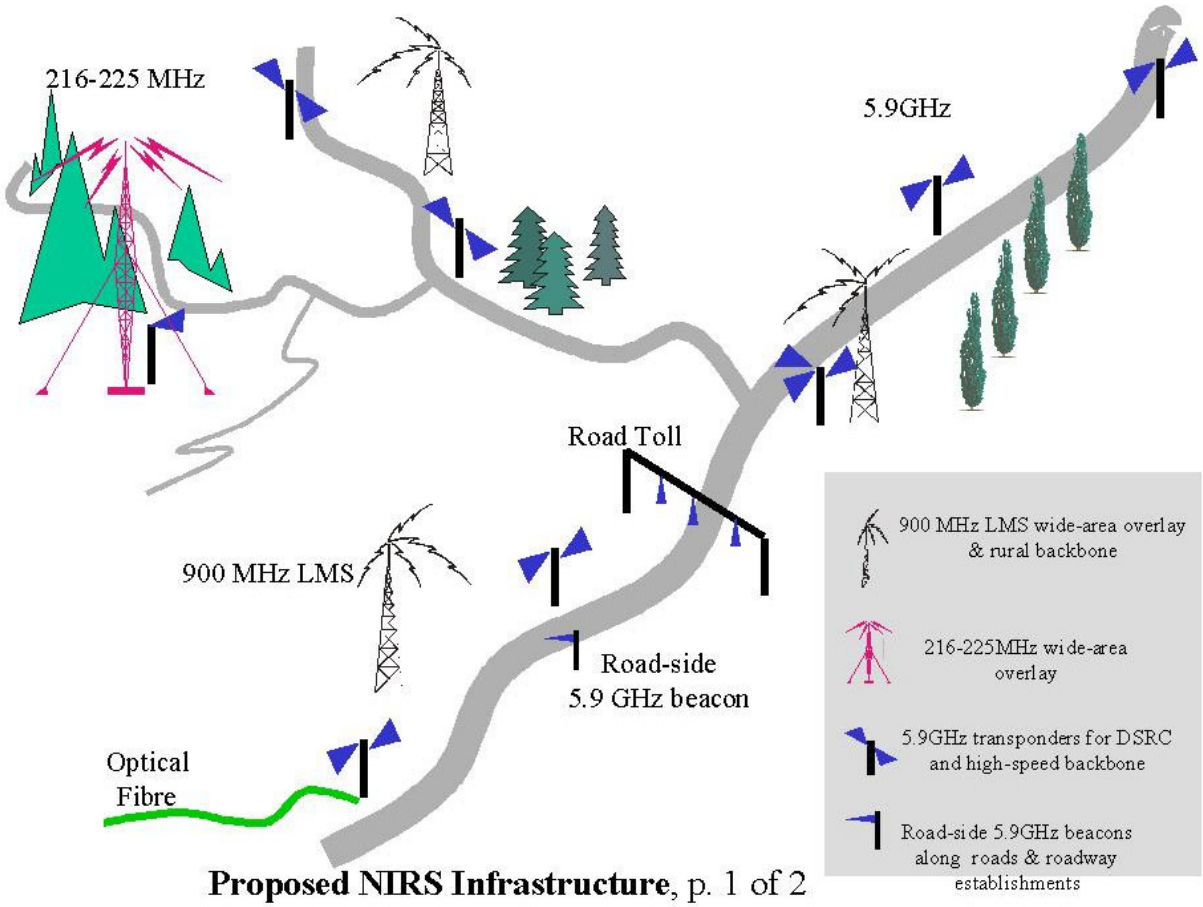
need for more spectrum for more and more advanced wireless is a major concern these days from commercial wireless operators and vendors, the FCC, Congress, the Executive Branch, and the Military (which wants to keep what it has in the face of demands to release spectrum to the burgeoning commercial wireless industry).

Warren C. Havens

Telesaurus Holdings GB, LLC
2509 Stuart Street
Berkeley, CA 94705

[filed May 17, 2001]

[Two Attachments]

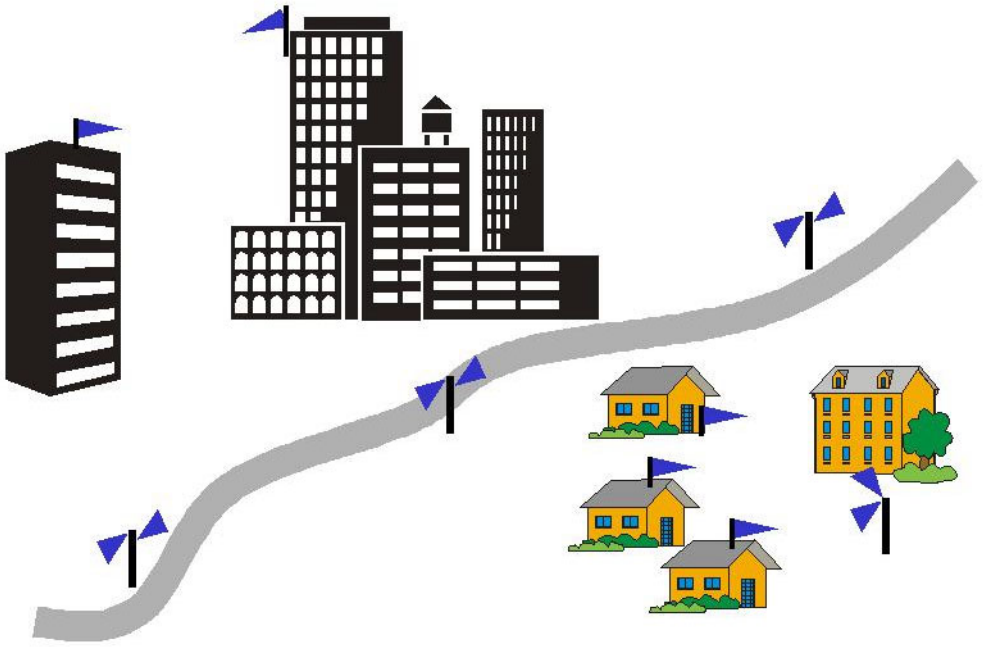


[NIRS is renamed ATIS in these Reply Comments under DA 02-361.]

[The 200 MHz (much of 216-225 MHz) would be used for very wide area coverage extending into rural and remote areas. The 900 MHz LMS (902-928 MHz) would be used mostly in urban and suburban areas and major highway corridors (eventually more rural areas also). The 5.9 GHz (75 MHz wide) would be used for ITS (Intelligent Transportation System) DSRC (several dozen types of Dedicated Short Range Communications) on and along the highways, and in addition, on a non-interfering basis, for other high-speed wireless for various fixed and some mobile services to other (other than highway-related) Critical Infrastructure.]

[Some of the recently allocated **4.9 GHz** (50 MHz wide) for Public Safety (which for this allocation may include Critical Infrastructure entities) may also serve the purposes described above for this 5.9 GHz.[45]]

[[45] See "Reallocation of the . . . Government Transfer Bands," *Notice of Proposed Rule Making*, WT Docket No. 02-08, released February 6, 2002.



Proposed NIRS Infrastructure, p. 2 of 2

(further depiction of roadway DSRC and other use of 5.9 GHz)

[NIRS is renamed ATIS in these Reply Comments under DA 02-361.]

[Depicts the 5.9 GHz used for high-speed point-to-point backhaul along highways (this carry traffic to and from the 200 and 900 MHz wide-area and 5.9 GHz local area or "hot spot" base stations, and points of interconnection to the PSTN and Internet. Also depicts high-speed wireless to facilities off of the roadways: homes, offices, plants, etc. All such uses would be in addition to ITS DSRC which would be protected from interference from such other uses.]

Attachment II (of II)
Of Reply Comments of LMS Wireless and Warren C. Havens in ET Docket No. 00-221

Declaration

While not pertinent to the above docket, Havens should respond to the following: In its Comments filed in the above-captioned matter dated March 1, 2002, Mobex and its counsel Dennis Brown deliberately introduced irrelevant, false, and misleading allegations concerning Havens, which constitute libel. (Havens will deal with the libel apart from this filing.) Mobex suggests an investigation. *Havens believes, and is already on record, that the Commission should indeed undertake a thorough investigation of all licenses and licensees in the 217 through 222 MHz band,* and that should include Mobex and its wholly owned Regionet and Watercom divisions. (On his part, Havens welcomes any questions or review by the Commission at any time with regard to his wireless applications and licenses and activities related thereto. He only asks that the Commission apply its rules uniformly and equally among competitors.) In fact, such reviews are the subject of dozens of filing by Havens before the Bureau and Commission.

The adversarial relationship between Havens and Mobex, and its origin by Mobex (including scores of "strike" applications), are documented extensively in numerous filings by Havens and Mobex before the Bureau and Commission in restricted proceedings. *Mobex, in these above-noted Comments, clearly violated Commission rules and abused its processes in submitting in a rule making proceeding these inflammatory and irrelevant allegations, and for this both Mobex and Dennis Brown its legal counsel should be severely sanctioned*.

If parties to adversarial proceedings before the Commission, particularly a restricted one, *are allowed without sanctions* to attack the other party in a rulemaking proceeding (regardless of whether it submitted "evidence" or a rationale supporting such attack or not), then (i) the purposes and order of such proceedings would be undermined, they could become circuses (at minimum, like here, the attacked party is obliged to respond and by such enlarge the proceeding with extraneous matter), and (i) the required processes for such contests (petitions to deny, petitions to reconsider, submissions to the Enforcement Bureau, and the like) would be circumvented and also subverted.

The Commission should not tolerate such abuse or let it pass without severe sanctions. I request that the Bureau sanction Mobex and Dennis Brown for this abuse. To not do so would set a dangerous precedent.

Regarding the specific allegations or suggestions of Mobex and Dennis Brown: Contrary to the flimsy suggestions by Mobex and Brown, Havens has always fully complied with all Commission disclosure requirements including in his licensing applications. Mobex states that Havens described Arnold Leong is his "partner," and by this Mobex means (but does not risk stating, since it has no evidence) not a "partner" in a common accepted sense of "a participant" or involved party (e.g., see Merriam Webster's Second Dictionary) but a narrow

legal sense of a person who is general partner or limited partner in a general or limited partnership. Havens does not have any such general or limited partnership with Leong or anyone (easily proven including by no Tax ID number and no tax filings for any general or limited partnership.) Rather, in the 2-6-01 document Mobex refers to, on page 20 Havens notes his relationship with Arnold Leong: he provides financial backing to Havens, and will be an equity holder in Telesaurus; on page 1 the use of "partner" merely reflects a participation by Leong further indicated on page 20. In Havens' licensing applications further details were given where and fully as required. Havens has no cause to give more details about his internal business arrangements than required when submitting voluntary information to any party.

Further, it is not believable that, after almost three years, Messrs. Vanderheyden and Daniels now remember with clarity that sustains declaring under penalty of perjury that Havens described Leong as his "partner" multiple specific times.[46] Havens denies here that he informed Daniels and Vanderheyden, per their declarations, that Leong was his "partner. "Even if that word was used, it is often used, including on occasion by Havens, to mean no more than a party that has some involvement or stake in a venture or relationship.

Havens has disclosed in writing to scores of persons and companies he is doing business with (including Tait Electronics, which the Vanderheyden "declaration" refers to) his relationship with Mr. Leong and such statements are fully consistent with his disclosures to the FCC. Havens had no cause to ever disclose to Mobex, Vanderheyden, or Daniels any of his internal affairs. Havens never sought any participation by them in any of his business matters. They merely waste Commission time by these flimsy irrelevant allegations. Brown writes that Havens "admitted" They do not believe that the Commission will take these seriously, especially in this rule making. They attempt cheap smear tactics in hopes that equipment vendors and other parties that may either do business with them, or Havens, will be mislead by such tactics.

Dennis Brown, who claims to be a licensed attorney at law (that profession professes high standards), writes in his above-noted Comments that "Havens admitted violation of his obligation to disclose the real party in interest. . . ." in regard to "Havens' qualification to be a Commission licensee." Havens made no such admission in any way. This charge is baseless and inflammatory, a cheap shot intended to damage Havens in his various dealings with parties who will or may review this filing by Mobex in a very public forum.[47] Apart from an abuse of Commission rules and processes, it is libel and will dealt with as such.

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[46] As shown with specific evidence in the dozens of pleadings by Havens opposing Mobex in various AMTS licensing matters, Mobex and its principals Daniels and Vanderheyden don't even remember basic FCC rules regarding AMTS; at least they do not act accordingly. They and Brown cannot even inform the commission of what date they allegedly placed their AMTS stations into operation: they only report that "on or about" such a date they commenced testing to commence service.

[47] It is not believable that Brown did not know that the Commission would see no merit in his lame and out-of-place suggestions. In fact, he probably knew he risked sanctions. Indeed, he writes on page 7 that "Mobex recognizes that Havens's qualifications . . . are outside the

I declare under penalty of perjury that the foregoing is true and correct.

WarrenHavens

Warren C. Havens
3-19-02

scope of the . . . proceeding." Rather, his purpose appears to be to cast a cloud over Havens's FCC licenses to gain unfair advantage in competing in the marketplace among "partners" (equipment vendors, financing sources, end users, etc.). In fact, there have been ramifications.